# **XAR**

Powerful. High Precision. Reliable

Servo Planetary Gearbox

Advanced Gearbox Solution

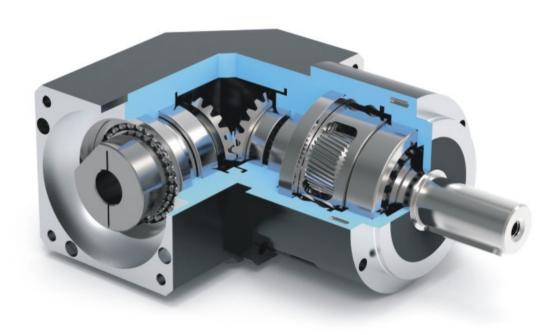






#### **Helical Gear System Technology**

Thanks to the tooth to tooth compact ratio more than 60%. The helical gearing and full needle bearing bring the benefits including higher torque capacity, smooth and lower noise running, decreased backlash and higher efficiency. Integrated housing engineering with super skiving gearing tooling craft.

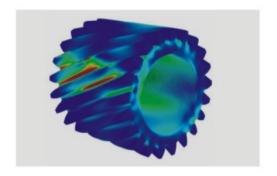




#### Master CageSpindle Planetary Carrier

The patented Master CageSpindle integrated planetary carrier support planetary gearbox to increase constructional strength running stability and rigidity significantly. Synthetic grease lubrication allows maintenance free for gearbox whole service life.





#### Super Gear Grinding and Heat Treatment Technology

The global leading gear grinding technology brings the great improvement for the tooth profile optimization, with the high level carburizing and quenching heat treatment technology to reach high precision and gear harden performance.





#### **Dynamic Balance Clamping and Sealing System**

For the gearbox input dynamic balance clamping design with perfect concentricity to decrease backlash and increase gearbox operation stability. The ultra sealing system offers grease leakage protection and support gearbox to reach IP65.

#### **Order Instructions**

#### Order Code:

XAR

Gearbox Series: XAR

120

Gearbox Size

02

Gearbox Stage

015

Gearbox Ratio

S1

S1: Output shaft with key

S2: Output shaft without key

P0

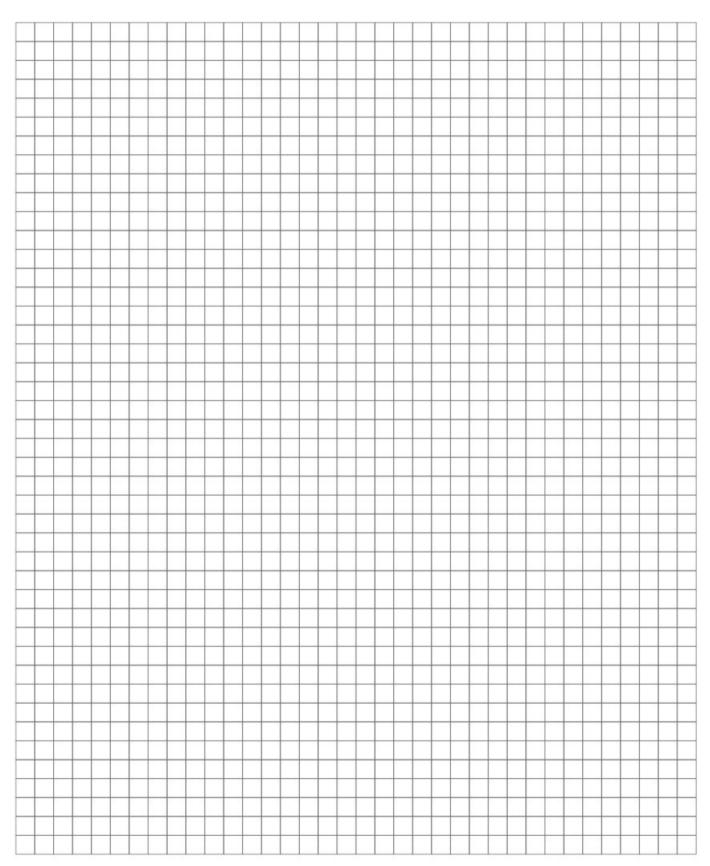
Gearbox Precision

Servo Motor

Motor Manufacturer and model



#### Technical Memo



## XAR070 1-stage

						1-si	tage							
Ratio	i		3	4	5	6	7	8	9	10				
		Nm	56	52	52	50	50	45	42	42				
Nominal Output Torque		in.lb	496	460	460	443	443	398	372	372				
F	_	Nm	168	156	156	150	150	135	126	126				
Emergency Stop Torque	T <sub>2Not</sub>	in.lb	1487	1381	1381	1328	1328	1195	1115	1115				
Maximum Appalaration Torque	-	Nm	100.8	93.6	93.6	90	90	81	75.6	75.6				
Maximum Acceleration Torque	T <sub>28</sub>	in.lb	892	828	828	797	797	717	669	669				
Maximum Torque	7	Nm	112	104	104	100	100	90	84	84				
Maximum Torque	T <sub>20</sub>	in.lb	991	920	920	885	885	797	743	743				
Permitted Average Input Speed	n <sub>IN</sub>	rpm				30	00							
Maximum Input Speed	n <sub>1Max</sub>	rpm			207 19	60	00	22 22						
Mean No Load Running Torque	T <sub>012</sub>	Nm	0.29	0.25	0.22	0.2	0.2	0.2	0.2	0.2				
Mean No Load Running Torque	1 012	in.lb	2.57	2.21	1.95	1.77	1.77	1.77	1.77	1.77				
Standard Backlash P1	j,	arcmin				<	7		7					
Reduced Low Backlash P0	jı	arcmin				<	5							
Ultra Low Backlash PU	j,	arcmin												
Torsional Rigidity	C <sub>121</sub>	Nm/arcmin												
rotototarrigidity	0121	in.lb/arcmin				61	.95							
Maximum Radial Load	F <sub>2AMas</sub>	N				15	00							
Maximum radial Edda	- Zonas	lb,				3:	37							
Maximum Axial Load	F <sub>2QMax</sub>	N				70	60							
THORNITOTT FOR EAST	2000	lb <sub>r</sub>				1	71							
Max. Tilting Moment	M <sub>2KMex</sub>	Nm				9	0							
	27380	in.lb				79	97							
Mass Moment of Inertia	j <sub>1</sub>	kgcm <sup>2</sup>	0.160	0.140	0.130	0.130	0.130	0.130	0.130	0.130				
Operating Noise Level	L <sub>PA</sub>	dB(A)				<	63							
Efficiency at Full loading	η	%				9	5							
Operating Temperature		$^{\circ}$				−25 t	0 +90							
opolating romporators		F				-13 to	+194							
Lubrication						Synthetic Lubr	ication Grease							
Mouting Position						Any Dir	rections							
Protection Class						IP	65							
Service lifetime	Lh	h				20,000(Continu	ous Operation	n)						
Weight	m	kg				2	.2							
gin	-"	lb <sub>m</sub>				4	.8							



# XAR070 2-stage

									2-stage	7					
Ratio	i		15	20	25	30	35	40	45	50	60	70	80	90	100
A CONTROL OF THE CONT		Nm	56	52	52	52	52	52	52	52	50	50	45	42	42
Nominal Output Torque		in.lb	496	460	460	460	460	460	460	460	443	443	398	372	372
2 4524 9272 2232	000	Nm	168	156	156	156	156	156	156	156	150	150	135	126	126
Emergency Stop Torque	T <sub>2Not</sub>	in.lb	1487	1381	1381	1381	1381	1381	1381	1381	1328	1328	1195	1115	1115
	_	Nm	100.8	93.6	93.6	93.6	93.6	93.6	93.6	93.6	90	90	81	75.6	75.6
Maximum Acceleration Torque	T <sub>28</sub>	in.lb	892	828	828	828	828	828	828	828	797	797	717	669	669
Maulanum Tarana	<u>_</u>	Nm	112	104	104	104	104	104	104	104	100	100	90	84	84
Maximum Torque	T <sub>20</sub>	in.lb	991	920	920	920	920	920	920	920	885	885	797	743	743
Permitted Average Input Speed	n <sub>IN</sub>	rpm							3000						
Maximum Input Speed	n <sub>1Max</sub>	rpm							6000						
Mean No Load Running Torque	T <sub>012</sub>	Nm	0.22	0.22	0.22	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Mean No Load Running Torque	012	in.lb	1.95	1.95	1.95	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77
Standard Backlash P1	j,	arcmin							≤9		-				
Reduced Low Backlash P0	j,	arcmin							≤7						
Ultra Low Backlash PU	j,	arcmin													
Torsional Rigidity	C <sub>121</sub>	Nm/arcmin							7						
	-121	in.lb/arcmin							61.95						
Maximum Radial Load	F <sub>2AMax</sub>	N							1500						
		lb,							337						
Maximum Axial Load	F <sub>2QMax</sub>	N							760						
		lb <sub>i</sub>							171						
Max. Tilting Moment	M <sub>2KMux</sub>	Nm							90						
	200	in.lb							797		1				
Mass Moment of Inertia	j,	kgcm²	0.075	0.075	0.075	0.064	0.064	0.064	0.064	0.064	0.064	0.075	0.064	0.064	0.064
Operating Noise Level	L <sub>PA</sub>	dB(A)							< 63						
Efficiency at Full loading	η	%							93						
Operating Temperature		σ							-25 to +9						
Lubulandian		F							13 to +19						
Lubrication  Mouting Position							,		Lubrication		В				
Mouting Position			Any Directions												
Protection Class Service lifetime	L,	h	IP 65 20,000(Continuous Operation)												
Get vice meditie	-h	kg					2	0,000(00	2	Operatio	11)				
Weight	m	lb <sub>m</sub>							5.28						
		IU <sub>m</sub>							0.20						

## XAR090 1-stage

						1-si	tage							
Ratio	i		3	4	5	6	7	8	9	10				
		Nm	160	145	155	145	145	142	142	142				
Nominal Output Torque		in.lb	1416	1283	1372	1283	1283	1257	1257	1257				
5	_	Nm	480	435	465	435	435	426	426	426				
Emergency Stop Torque	T <sub>2Not</sub>	in.lb	4248	3850	4116	3850	3850	3770	3770	3770				
Martin and Association Towns	_	Nm	288	261	279	261	261	255.6	255.6	255.6				
Maximum Acceleration Torque	T <sub>28</sub>	in.lb	2549	2310	2469	2310	2310	2262	2262	2262				
Marrian na Tarana	Ţ	Nm	320	290	310	290	290	284	284	284				
Maximum Torque	T <sub>20</sub>	in.lb	2832	2567	2744	2567	2567	2514	2514	2514				
Permitted Average Input Speed	n <sub>IN</sub>	rpm				30	00							
Maximum Input Speed	n <sub>1Max</sub>	rpm			x2	60	00	v						
Moon No Load Dunning Torque	_	Nm	0.43	0.41	0.36	0.34	0.3	0.3	0.3	0.3				
Mean No Load Running Torque	T <sub>012</sub>	in.lb	3.81	3.63	3.19	3.01	2.66	2.66	2.66	2.66				
Standard Backlash P1	j,	arcmin				<	7							
Reduced Low Backlash P0	j	arcmin					:5							
Ultra Low Backlash PU	j	arcmin												
Torsional Rigidity	C <sub>121</sub>	Nm/arcmin												
Torsional rigidity	0121	in.lb/arcmin				123	3.91							
Maximum Radial Load	F <sub>2AMas</sub>	N				32	00							
Waxiiriaiii i Kadiai Eoad	* 2AMas	lb,				7	19							
Maximum Axial Load	F <sub>2QMax</sub>	N				16	00							
Maximum Axiai Eoad	* ZOMAX	lb <sub>r</sub>				30	60							
Max. Tilting Moment	M <sub>2KMex</sub>	Nm				2	14							
The state of the s	2/18/802	in.lb				18	94							
Mass Moment of Inertia	j <sub>1</sub>	kgcm <sup>2</sup>	0.61	0.48	0.47	0.47	0.47	0.45	0.44	0.44				
Operating Noise Level	L <sub>PA</sub>	dB(A)				<	65							
Efficiency at Full loading	η	%				9	5							
Operating Temperature		$^{\circ}$				−25 t	0 +90							
operating remperature		F				-13 to	+194							
Lubrication						Synthetic Lubr	ication Grease	)						
Mouting Position						Any Dir	ections							
Protection Class						IP	65							
Service lifetime	Lh	h				20,000(Continu	ous Operation	n)						
Weight	m	kg				5	.3							
Weight	III	lb <sub>m</sub>				11	1.7							



# XAR090 2-stage

									2-stage						
Ratio	i		15	20	25	30	35	40	45	50	60	70	80	90	100
		Nm	160	145	155	155	155	155	155	155	145	145	142	142	142
Nominal Output Torque		in.lb	1416	1283	1372	1372	1372	1372	1372	1372	1283	1283	1257	1257	1257
Francisco Oton Torrio	_	Nm	480	435	465	465	465	465	465	465	435	435	426	426	426
Emergency Stop Torque	T <sub>2Not</sub>	in.lb	4248	3850	4116	4116	4116	4116	4116	4116	3850	3850	3770	3770	3770
Maximum Acceleration Torque	т	Nm	288	261	279	279	279	279	279	279	261	261	255.6	255.6	255.6
Maximum Acceleration Torque	T <sub>28</sub>	in.lb	2549	2310	2469	2469	2469	2469	2469	2469	2310	2310	2262	2262	2262
Maximum Torque	T <sub>20</sub>	Nm	320	290	310	310	310	310	310	310	290	290	284	284	284
Maximum Torque	7 20	in.lb	2832	2567	2744	2744	2744	2744	2744	2744	2567	2567	2514	2514	2514
Permitted Average Input Speed	n <sub>IN</sub>	rpm							3000						
Maximum Input Speed	n <sub>1Max</sub>	rpm							6000					,	
Mean No Load Running Torque	T <sub>012</sub>	Nm	0.36	0.36	0.36	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Mean No Load Running Torque	012	in.lb	3.19	3.19	3.19	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66	2.66
Standard Backlash P1	j,	arcmin							≤9						
Reduced Low Backlash P0	j,	arcmin							≤7						
Ultra Low Backlash PU	j,	arcmin													
Torsional Rigidity	C <sub>121</sub>	Nm/arcmin							14						
To olona rigidity	Oizi	in.lb/arcmin							123.91						
Maximum Radial Load	F <sub>2AMax</sub>	N							3200						
Maximum Nadiai Edad	* 2AVIER	lb,							719						
Maximum Axial Load	F <sub>20Max</sub>	N							1600						
THANTITY MAIN EVAN	- Zumax	lb <sub>i</sub>							360						
Max. Tilting Moment	M <sub>2KMex</sub>	Nm							214						
The state of the s	20,8682	in.lb							1894						
Mass Moment of Inertia	j <sub>1</sub>	kgcm <sup>2</sup>	0.44	0.44	0.44	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.44	0.39	0.44
Operating Noise Level	Lpa	dB(A)							< 65						
Efficiency at Full loading	η	%							93						
Operating Temperature		°C							-25 to +9	0					
opolating remperature		F						9.2	13 to +19	94					
Lubrication			Synthetic Lubrication Grease												
Mouting Position			Any Directions												
Protection Class			IP 65												
Service lifetime	Lh	h					2	0,000(Co	ntinuous	Operatio	n)				
Weight	m	kg							7						
		lb <sub>m</sub>							14.3						

## XAR120 1-stage

(4)						1-si	tage							
Ratio	ä		3	4	5	6	7	8	9	10				
		Nm	335	300	320	300	300	295	295	295				
Nominal Output Torque		in.lb	2965	2655	2832	2655	2655	2611	2611	2611				
	_	Nm	1005	900	960	900	900	885	885	885				
Emergency Stop Torque	T <sub>29lot</sub>	in.lb	8895	7966	8497	7966	7966	7833	7833	7833				
Marian Annahari	_	Nm	603	540	576	540	540	531	531	531				
Maximum Acceleration Torque	T <sub>28</sub>	in.lb	5337	4779	5098	4779	4779	4700	4700	4700				
Marrian na Taran a	_	Nm	670	600	640	600	600	590	590	590				
Maximum Torque	T 20	in.lb	5930	5310	5664	5310	5310	5222	5222	5222				
Permitted Average Input Speed	n <sub>IN</sub>	rpm				30	100							
Maximum Input Speed	n <sub>1Mex</sub>	rpm			re e	60	100	×						
Mean No Load Running Torque	7	Nm	1.2	1.15	1.05	1.01	0.98	0.98	0.98	0.98				
Mean No Load Running Torque	T <sub>012</sub>	in.lb	10.62	10.18	9.29	8.94	8.67	8.67	8.67	8.67				
Standard Backlash P1	j,	arcmin				<	7							
Reduced Low Backlash P0	jı	arcmin					5							
Ultra Low Backlash PU	jŧ	arcmin												
Torsional Rigidity	C <sub>121</sub>	Nm/arcmin												
Torsionarrigidity	O <sub>121</sub>	in.lb/arcmin				230	).12							
Maximum Radial Load	F <sub>2AMas</sub>	N				67	000							
Waxiindiii Kadiai Load	* 2AMas	lb,				15	606							
Maximum Axial Load	F <sub>20Mex</sub>	N				33	000							
Maximum Axiai Edad	* ZUMBX	lb <sub>r</sub>				7-	42							
Max. Tilting Moment	M <sub>2KM</sub>	Nm				6	03							
max. Filling mornism	270,000	in.lb				53	137							
Mass Moment of Inertia	j,	kgcm <sup>2</sup>	3.25	2.74	2.71	2.71	2.62	2.62	2.62	2.57				
Operating Noise Level	L <sub>PA</sub>	dB(A)				<	68							
Efficiency at Full loading	η	%				9	5							
Operating Temperature		$^{\circ}$				−25 t	0 +90							
operating remperature		F				-13 to	+194							
Lubrication						Synthetic Lubr	ication Grease	r.						
Mouting Position						Any Dir	rections							
Protection Class						IP	65							
Service lifetime	Lh	h				20,000(Continu	ous Operation	)						
Weight	m	kg					9							
g.n	""	lb <sub>m</sub>				19	9.8							



# XAR120 2-stage

									2-stage						
Ratio	i		15	20	25	30	35	40	45	50	60	70	80	90	100
A CONTROL OF THE CONT		Nm	335	300	320	320	320	320	320	320	300	300	295	295	295
Nominal Output Torque		in.lb	2965	2655	2832	2832	2832	2832	2832	2832	2655	2655	2611	2611	2611
7 4004 9000 1000		Nm	1005	900	960	960	960	960	960	960	900	900	885	885	885
Emergency Stop Torque	T <sub>2Not</sub>	in.lb	8895	7966	8497	8497	8497	8497	8497	8497	7966	7966	7833	7833	7833
	_	Nm	603	540	576	576	576	576	576	576	540	540	531	531	531
Maximum Acceleration Torque	T <sub>28</sub>	in.lb	5337	4779	5098	5098	5098	5098	5098	5098	4779	4779	4700	4700	4700
Marchael Towns	Į.	Nm	670	600	640	640	640	640	640	640	600	600	590	590	590
Maximum Torque	T <sub>20</sub>	in.lb	5930	5310	5664	5664	5664	5664	5664	5664	5310	5310	5222	5222	5222
Permitted Average Input Speed	n <sub>IN</sub>	rpm							3000						
Maximum Input Speed	n <sub>1Max</sub>	rpm							6000						
Mean No Load Running Torque	T <sub>012</sub>	Nm	1.05	1.05	1.05	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Mean No Load Running Torque	1 012	in.lb	9.29	9.29	9.29	8.67	8.67	8.67	8.67	8.67	8.67	8.67	8.67	8.67	8.67
Standard Backlash P1	jŧ	arcmin							≤9						
Reduced Low Backlash P0	j,	arcmin							≤7						
Ultra Low Backlash PU	jį	arcmin													
Torsional Rigidity	C <sub>121</sub>	Nm/arcmin							26						
Toronor a signary	Oizi	in.lb/arcmin							230.12						
Maximum Radial Load	F <sub>2AMex</sub>	N							6700						
THE STATE OF THE S	Devias	lb,							1506						
Maximum Axial Load	F <sub>20Max</sub>	N							3300						
	24111	lb <sub>i</sub>							742						
Max. Tilting Moment	M <sub>2KMax</sub>	Nm							603						
30,500 a.c. (1996 - 10,500 a.g. (1996 a.g. (		in.lb							5337						
Mass Moment of Inertia	Ĵι	kgcm <sup>2</sup>	1.5	1.5	1.49	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.53	1.53	1.49
Operating Noise Level	L <sub>PA</sub>	dB(A)							< 68						
Efficiency at Full loading	η	%							93						
Operating Temperature		°							-25 to +9						
		F							13 to +19		2.				
Lubrication			Synthetic Lubrication Grease												
Mouting Position			Any Directions												
Protection Class	7		IP 65												
Service lifetime	Lh	h					2	0,000(Co	ntinuous	Operatio	n)				
Weight	m	kg							13						
		lb <sub>m</sub>							28.6						

# XAR160 1-stage

1						1-si	age							
Ratio	i		3	4	5	6	7	8	9	10				
		Nm	630	550	620	600	575	550	510	510				
Nominal Output Torque		in.lb	5576	4868	5487	5310	5089	4868	4514	4514				
	_	Nm	1890	1650	1860	1800	1725	1650	1530	1530				
Emergency Stop Torque	T <sub>2Not</sub>	in.lb	16728	14604	16462	15931	15267	14604	13542	13542				
Manifesture Associated Tourse	_	Nm	1134	990	1116	1080	1035	990	918	918				
Maximum Acceleration Torque	T <sub>28</sub>	in.lb	10037	8762	9877	9559	9160	8762	8125	8125				
Marrian na Tarana	-	Nm	1260	1100	1240	1200	1150	1100	1020	1020				
Maximum Torque	T <sub>20</sub>	in.lb	11152	9736	10975	10621	10178	9736	9028	9028				
Permitted Average Input Speed	n <sub>1N</sub>	rpm				30	00							
Maximum Input Speed	n <sub>1Max</sub>	rpm			202 10	60	00	22 21						
Mean No Load Running Torque	_	Nm	2.75	2.65	2.5	2.4	2.4	2.4	2.4	2.4				
Mean No Load Running Torque	T <sub>012</sub>	in.lb	24.34	23.45	22.13	21.24	21.24	21.24	21.24	21.24				
Standard Backlash P1	jı	arcmin				<	7							
Reduced Low Backlash P0	jı	arcmin				4	:5							
Ultra Low Backlash PU	j,	arcmin												
Torsional Rigidity	C <sub>121</sub>	Nm/arcmin				- 5	2							
Torsional regidity	O <sub>121</sub>	in.lb/arcmin				460	).24							
Maximum Radial Load	F <sub>2AMas</sub>	N				96	00							
Waxiiriaiii Kadiai Eoad	* 2AMas	lb <sub>i</sub>				21	58							
Maximum Axial Load	F <sub>2QMax</sub>	N				48	00							
Maximum Axiai Edad	* ZQMax	lb <sub>i</sub>				10	79							
Max. Tilting Moment	M <sub>2KMex</sub>	Nm				12	75							
The state of the s	Znano	in.lb				11:	285							
Mass Moment of Inertia	j <sub>1</sub>	kgcm <sup>2</sup>	12.31	7.54	7.42	7.42	7.25	7.14	7.14	7.14				
Operating Noise Level	L <sub>PA</sub>	dB(A)				<	70							
Efficiency at Full loading	η	%				9	5							
Operating Temperature		℃				−25 t	0 +90							
operating remperature		F				-13 to	+194							
Lubrication						Synthetic Lubr	ication Grease							
Mouting Position						Any Dir	rections							
Protection Class						IP	65							
Service lifetime	Lh	h				20,000(Continu	ous Operation	n)						
Weight	m	kg				2	6							
		lb <sub>m</sub>				57	7.2							



# XAR160 2-stage

									2-stage	9					
Ratio	i		15	20	25	30	35	40	45	50	60	70	80	90	100
		Nm	630	550	620	620	620	620	620	620	600	575	550	510	510
Nominal Output Torque		in.lb	5576	4868	5487	5487	5487	5487	5487	5487	5310	5089	4868	4514	4514
	0.15	Nm	1890	1650	1860	1860	1860	1860	1860	1860	1800	1725	1650	1530	1530
Emergency Stop Torque	T <sub>2Not</sub>	in.lb	16728	14604	16462	16462	16462	16462	16462	16462	15931	15267	14604	13542	13542
Marchan Arabantan Tanan	-	Nm	1134	990	1116	1116	1116	1116	1116	1116	1080	1035	990	918	918
Maximum Acceleration Torque	T <sub>28</sub>	in.lb	10037	8762	9877	9877	9877	9877	9877	9877	9559	9160	8762	8125	8125
Maximum Tarqua	_	Nm	1260	1100	1240	1240	1240	1240	1240	1240	1200	1150	1100	1020	1020
Maximum Torque	T <sub>20</sub>	in.lb	11152	9736	10975	10975	10975	10975	10975	10975	10621	10178	9736	9028	9028
Permitted Average Input Speed	n <sub>1N</sub>	rpm							3000						
Maximum Input Speed	n <sub>1Max</sub>	rpm			7.7 TO			w w	6000						
Mean No Load Running Torque	T <sub>012</sub>	Nm	2.6	2.6	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Mean No Load Running Torque	012	in.lb	23.01	23.01	23.01	23.01	22.13	22.13	22.13	22.13	22.13	22.13	22.13	22.13	22.13
Standard Backlash P1	jŧ	arcmin	3						≤9		S) ==				
Reduced Low Backlash P0	j,	arcmin							≤7						
Ultra Low Backlash PU	j,	arcmin													
Torsional Rigidity	C <sub>121</sub>	Nm/arcmin							52						
Toronor a signary	Oizi	in.lb/arcmin							460.24						
Maximum Radial Load	F <sub>24Max</sub>	N							9600						
THE STATE OF THE S	2 Junio	lb,							2158						
Maximum Axial Load	F <sub>20Max</sub>	N							4800						
		lb <sub>r</sub>							1079						
Max. Tilting Moment	M <sub>2KMux</sub>	Nm							1275						
- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	(20,711217)	in.lb							11285						
Mass Moment of Inertia	j,	kgcm²	7.47	6.65	5.81	6.34	5.36	4.08	5.36	4.08	4.08	4.08	7.4	7.3	7.3
Operating Noise Level	Lpa	dB(A)							< 70						
Efficiency at Full loading	η	%							93						
Operating Temperature		r						3	-25 to +9	0.					
Section 1997		F							13 to +19		9.				
Lubrication			Synthetic Lubrication Grease												
Mouting Position		 	Any Directions												
Protection Class			IP 65												
Service lifetime	L,	h					2	0,000(Co	ntinuous	Operatio	n)				
Weight	m	kg							31						
		lb <sub>m</sub>							68.2						

## XAR205 1-stage

						1-s	tage							
Ratio	i		3	4	5	6	7	8	9	10				
Namical O. to 4 Tarres		Nm	1220	1170	1170	1100	1100	1060	1060	1060				
Nominal Output Torque		in.lb	10798	10355	10355	9736	9736	9382	9382	9382				
Consessed Oton Torriso	_	Nm	3660	3510	3510	3300	3300	3180	3180	3180				
Emergency Stop Torque	T <sub>2Not</sub>	in.lb	32394	31066	31066	29207	29207	28145	28145	28145				
Maximum Appalanation Torriso	_	Nm	2196	2106	2106	1980	1980	1908	1908	1908				
Maximum Acceleration Torque	T <sub>28</sub>	in.lb	19436	18640	18640	17524	17524	16887	16887	16887				
Marianum Tararia	-	Nm	2440	2340	2340	2200	2200	2120	2120	2120				
Maximum Torque	T <sub>20</sub>	in.lb	21596	20711	20711	19472	19472	18763	18763	18763				
Permitted Average Input Speed	n <sub>IN</sub>	rpm				15	500	•	•					
Maximum Input Speed	n <sub>1Max</sub>	rpm			92	30	000	**						
Mean No Load Running Torque	_	Nm	3.9	3.8	3.55	3.4	3.4	3.4	3.4	3.4				
Mean No Load Running Torque	T <sub>012</sub>	in.lb	34.52	33.63	31.42	30.09	30.09	30.09	30.09	30.09				
Standard Backlash P1	jı	arcmin					£7							
Reduced Low Backlash P0	jı	arcmin					∈5							
Ultra Low Backlash PU	jı	arcmin												
Torsional Rigidity	C <sub>121</sub>	Nm/arcmin												
Torsional Rigidity	O <sub>121</sub>	in.lb/arcmin				122	1.40							
Maximum Radial Load	F <sub>2AMas</sub>	N				14	000							
Maximum Nadiai Load	2AMas	lb,				31	147							
Maximum Axial Load	F <sub>2QMax</sub>	N				70	000							
Maximum Axiai Load	* 2QMax	lb <sub>r</sub>				15	574							
Max. Tilting Moment	M <sub>2KMex</sub>	Nm				20	)13							
Max. Hang Women	2Klifax	in.lb				17	816							
Mass Moment of Inertia	j <sub>1</sub>	kgcm²	28.98	23.67	22.75	22.75	22.48	22.59	22.59	22.55				
Operating Noise Level	L <sub>PA</sub>	dB(A)				<	72							
Efficiency at Full loading	η	%				9	95							
Operating Temperature		°C				-25 t	0 +90							
Operating remperature		F				-13 to	+194							
Lubrication					1	Synthetic Lubr	rication Grease	э						
Mouting Position						Any Di	rections							
Protection Class						IP	65							
Service lifetime	Lh	h				20,000(Continu	uous Operation	n)						
Weight	m	kg				4	11							
rroight	m	lb <sub>m</sub>				90	0.2							



# XAR205 2-stage

									2-stage	1					
Ratio	i		15	20	25	30	35	40	45	50	60	70	80	90	100
		Nm	1220	1170	1170	1170	1170	1170	1170	1170	1100	1100	1060	1060	1060
Nominal Output Torque		in.lb	10798	10355	10355	10355	10355	10355	10355	10355	9736	9736	9382	9382	9382
		Nm	3660	3510	3510	3510	3510	3510	3510	3510	3300	3300	3180	3180	3180
Emergency Stop Torque	T <sub>2Not</sub>	in.lb	32394	31066	31066	31066	31066	31066	31066	31066	29207	29207	28145	28145	28145
Marchan Arabantan Tanan	-	Nm	2196	2106	2106	2106	2106	2106	2106	2106	1980	1980	1908	1908	1908
Maximum Acceleration Torque	T <sub>28</sub>	in.lb	19436	18640	18640	18640	18640	18640	18640	18640	17524	17524	16887	16887	16887
Maximum Tarqua	T	Nm	2440	2340	2340	2340	2340	2340	2340	2340	2200	2200	2120	2120	2120
Maximum Torque	T <sub>2u</sub>	in.lb	21596	20711	20711	20711	20711	20711	20711	20711	19472	19472	18763	18763	18763
Permitted Average Input Speed	n <sub>1N</sub>	rpm							1500						
Maximum Input Speed	n <sub>1Max</sub>	rpm							3000						
Mean No Load Running Torque	T <sub>012</sub>	Nm	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Mean No Load Running Torque	012	in.lb	23.90	23.90	23.90	23.01	23.01	23.01	23.01	23.01	23.01	23.01	23.01	23.01	23.01
Standard Backlash P1	jŧ	arcmin	3						≤9		S) ==				
Reduced Low Backlash P0	j	arcmin							≤7						
Ultra Low Backlash PU	j,	arcmin													
Torsional Rigidity	C <sub>121</sub>	Nm/arcmin							138						
To oto not regionly	Oizi	in.lb/arcmin							1221.40						
Maximum Radial Load	F <sub>24Max</sub>	N							14000						
THE STATE OF THE S	2 Junio	lb,							3147						
Maximum Axial Load	F <sub>20Max</sub>	N							7000						
		lb <sub>i</sub>							1574						
Max. Tilting Moment	M <sub>2KMux</sub>	Nm							2013						
- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	(20,7112)	in.lb							17816						
Mass Moment of Inertia	j,	kgcm²	7.42	7.42	7.54	7.14	7.14	22.55	7.14	7.14	7.14	7.14	7.54	7.54	7.42
Operating Noise Level	Lpa	dB(A)							< 72						
Efficiency at Full loading	η	%							93						
Operating Temperature		°							-25 to +9	0					
		F					500		13 to +19		8				
Lubrication			Synthetic Lubrication Grease												
Mouting Position			Any Directions												
Protection Class		W.	IP 65 20,000(Continuous Operation)												
Service lifetime	L,	h					2	0,000(Co		Operatio	n)				
Weight	m	kg							49						
		lb <sub>m</sub>							107.8						

## XAR235 1-stage

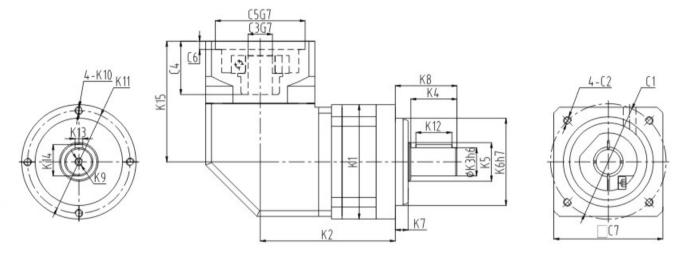
						1-st	age							
Ratio	i		3	4	5	6	7	8	9	10				
Newley October Transco		Nm	2050	2000	2000	1900	1900	1800	1800	1800				
Nominal Output Torque		in.lb	18144	17701	17701	16816	16816	15931	15931	15931				
Consessed Star Torris	_	Nm	6150	6000	6000	5700	5700	5400	5400	5400				
Emergency Stop Torque	T <sub>2Not</sub>	in.lb	54432	53104	53104	50449	50449	47794	47794	47794				
Manianum Appalaration Targus	_	Nm	3690	3600	3600	3420	3420	3240	3240	3240				
Maximum Acceleration Torque	T <sub>28</sub>	in.lb	32659	31863	31863	30269	30269	28676	28676	28676				
Maulina una Tarra una	Ţ	Nm	4100	4000	4000	3800	3800	3600	3600	3600				
Maximum Torque	T <sub>20</sub>	in.lb	36288	35403	35403	33633	33633	31863	31863	31863				
Permitted Average Input Speed	n <sub>IN</sub>	rpm				15	00							
Maximum Input Speed	n <sub>1Max</sub>	rpm			202 10	30	00	82 22						
Mean No Load Running Torque	_	Nm	5.6	5.4	5.25	5.07	5.07	5.07	5.07	5.07				
Mean No Load Running Torque	T <sub>012</sub>	in.lb	49.56	47.79	46.47	44.87	44.87	44.87	44.87	44.87				
Standard Backlash P1	j,	arcmin				<	7							
Reduced Low Backlash P0	j	arcmin				<	5							
Ultra Low Backlash PU	j,	arcmin												
Torsional Rigidity	C <sub>121</sub>	Nm/arcmin				22	20							
Torsional regidity	0121	in.lb/arcmin				194	7.15							
Maximum Radial Load	F <sub>2AMas</sub>	N				160	000							
Maximum Nadial Edad	* ZAMIR	lb <sub>i</sub>				35	97							
Maximum Axial Load	F <sub>2QMax</sub>	N				80	00							
Maximum Axiai Load	* 20Max	lb <sub>i</sub>				17	98							
Max. Tilting Moment	M <sub>2KMex</sub>	Nm				26	76							
max. Fitting mornism	2Klitus	in.lb				236	684							
Mass Moment of Inertia	j,	kgcm <sup>2</sup>	69.61	54.37	53.27	53.27	50.84	50.84	50.84	50.56				
Operating Noise Level	L <sub>PA</sub>	dB(A)				<	75							
Efficiency at Full loading	η	%				9	5							
Operating Temperature		$^{\circ}$				−25 t	0 +90							
oporating remperature		F				-13 to	+194							
Lubrication						Synthetic Lubr	ication Grease	r.						
Mouting Position						Any Dir	ections							
Protection Class						IP	65							
Service lifetime	Lh	h			3	20,000(Continu	ous Operation	)						
Weight	m	kg				6	8							
	""	lb <sub>m</sub>				14	9.6							



# XAR235 2-stage

									2-stage	f					- 1
Ratio	i		15	20	25	30	35	40	45	50	60	70	80	90	100
		Nm	2050	2000	2000	2000	2000	2000	2000	2000	1900	1900	1800	1800	1800
Nominal Output Torque		in.lb	18144	17701	17701	17701	17701	17701	17701	17701	16816	16816	15931	15931	15931
	_	Nm	6150	6000	6000	6000	6000	6000	6000	6000	5700	5700	5400	5400	5400
Emergency Stop Torque	T <sub>2Not</sub>	in.lb	54432	53104	53104	53104	53104	53104	53104	53104	50449	50449	47794	47794	47794
Manian na Appalantian Tanana	-	Nm	3690	3600	3600	3600	3600	3600	3600	3600	3420	3420	3240	3240	3240
Maximum Acceleration Torque	T <sub>28</sub>	in.lb	32659	31863	31863	31863	31863	31863	31863	31863	30269	30269	28676	28676	28676
Maximum Torque	_	Nm	4100	4000	4000	4000	4000	4000	4000	4000	3800	3800	3600	3600	3600
Maximum Torque	T <sub>20</sub>	in.lb	36288	35403	35403	35403	35403	35403	35403	35403	33633	33633	31863	31863	31863
Permitted Average Input Speed	n <sub>IN</sub>	rpm							1500						
Maximum Input Speed	n <sub>1Max</sub>	rpm							3000					, ,	
Mean No Load Running Torque	T <sub>012</sub>	Nm	3.55	3.55	3.55	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
mount to Loud Naming Torquo	* 012	in.lb	31.42	31.42	31.42	30.09	30.09	30.09	30.09	30.09	30.09	30.09	30.09	30.09	30.09
Standard Backlash P1	j,	arcmin							≤9						
Reduced Low Backlash P0	j,	arcmin							≤7						
Ultra Low Backlash PU	j,	arcmin	in ≤5												
Torsional Rigidity	C <sub>121</sub>	Nm/arcmin							220						
To oto a ragiany	Oizi	in.lb/arcmin							1947.15						
Maximum Radial Load	F <sub>24Mex</sub>	N							16000						
THE STATE OF THE S	Denta	lb,							3597						
Maximum Axial Load	F <sub>2QMax</sub>	N							8000						
113011111111111111111111111111111111111	24111	lb <sub>i</sub>							1798						
Max. Tilting Moment	M <sub>2KMax</sub>	Nm							2676						
		in.lb							23684						
Mass Moment of Inertia	j,	kgcm²	22.75	22.75	22.75	22.59	22.59	22.59	22.59	22.59	22.59	22.75	22.75	22.59	22.59
Operating Noise Level	Lpa	dB(A)							< 75						
Efficiency at Full loading	η	%							93	-					
Operating Temperature		°C							-25 to +9	0					
		F							13 to +19	94					
Lubrication			Synthetic Lubrication Grease												
Mouting Position			Any Directions												
Protection Class		l,	IP 65												
Service lifetime	Lh	h					2	0,000(Co	ntinuous	Operatio	n)				
Weight	m	kg							78						
		lb <sub>m</sub>							171.6						

#### **XAR Dimensions**



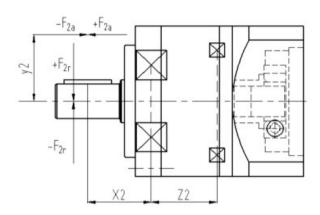
Model	XAR070		XAR090		XAR120		XAR160		XAR205	
Stage	1	2	1	2	1	2	1	2	1	2
K1	Φ70		Ф89		Ф120		Ф160		Ф205	
K2	93	116.7	105.2	136.5	154	198.5	187	248	204.5	251.5
К3	Ф16		Ф22		Ф32		Φ40		Ф55	
K4	30		36		50		80		82	
K5	Ф20		Ф30		Φ40		Φ50		Φ60	
K6	Φ52		Φ68		Φ90		Ф 130		Ф160	
K7	5		10		12		15		20	
K8	37		48		65		97		105	
K9	M5X12		M6X16		M10X22		M12X25		M20X40	
K10	M5X12		M6X15		M8X19		M12X20		M12X20	
K11	Φ62		Φ80		Φ108		Φ145		Ф 184	
K12	22		28		40		70		70	
K13	5		6		10		12		16	
K14	18		24.5		35		43		59	
K15	82.5		94		140		169		169	
C1	Φ70		Φ90		Ф 145		Ф200		Ф200	
C2	M5X12		M6X15		M8X20		M12X25		M12X25	
C3	Φ14		Φ19		Φ24		Φ35		Ф35	
C4	3	2.1	41.	6	6	1.3	8	2	82	
C5	Ф	50	Φ7	0	Φ	110	Φ1	14.3	Ф114.3	
C6	(	3.5	6.5	5		8	8		8	
C7		65	85	5	1	20	175		175	

The dimensions modified as per the applied motor flanges.

You can get the specific gearbox drawing solution by KDP(Kofon Design Programme) on line from our website: www.kofon-motion.com



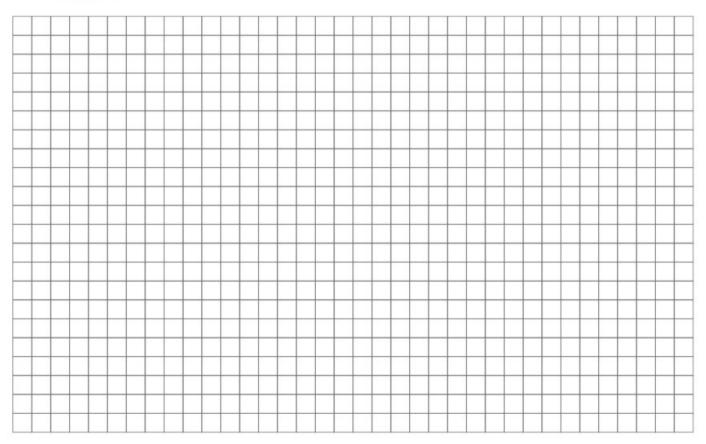
# XAR Titling moment



 $M_{2kb} = [F_{2a}xy_2 + F_{2rb}x(X_2 + Z_2)]/1000$ 

XAR	050	070	090	120	160	205	235
Z2[mm]	8.2	30.5	33.5	45	66.5	72.5	83.5
М <sub>2Кь</sub>	19	90	214	603	1275	2013	2676

#### Technical Memo



#### Technical Memo

