

The **LRPX** carefully integrates the unique RPX series motor with a custom planetary gearbox. The result is a small form factor BLDC motor that can produce high torque at low RPM and offer strong, smooth operation with low noise!

Features:

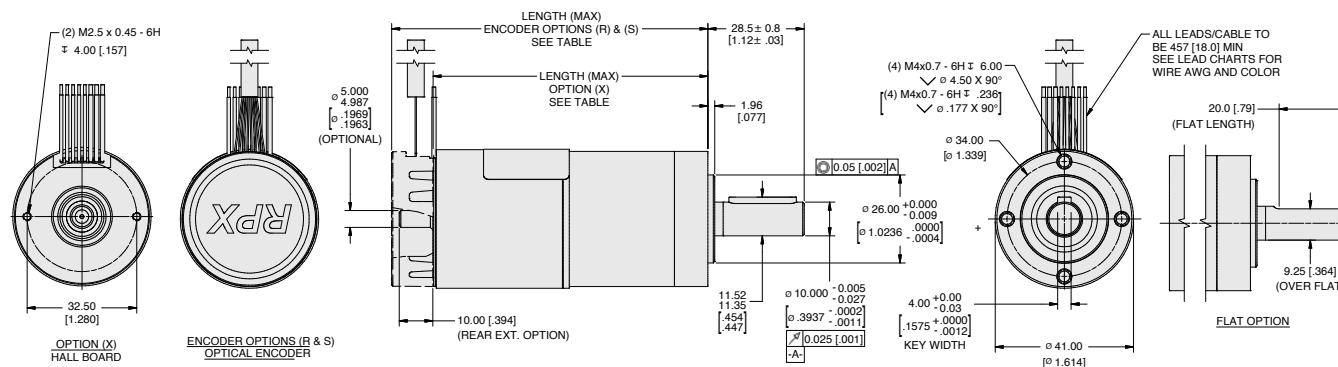
- High torque density delivers class- leading torque from compact frame size.
- 14 pole motor; high torque at low speeds.
- High load capacity.
- Low heat generation.
- Low noise & High efficiency compared to similar gearmotors.



LRPX40 BRUSHLESS DC MOTOR

Size:	40 mm (1.575 in) diameter
Peak Torque:	to 22.5 Nm (3,186 oz.in)
Continuous Stall Torque:	to 15.0 Nm (2124 oz.in)
Speed:	to 1263 RPM

All measurements in mm [inches]



LRPX Model Number

L R P X	4 0	-	2 5 0	V	2 4	-	1 2 0	-	S	0 0 3
Product Type	Frame Size 40 mm		Torque mNm 250		Voltage 12 24 48		Rear Shaft 0 - None 1 - Yes		Front Shaft 1 - Flat 2 - Key	Feedback X - Hall Only R - 1024 Line Diff. Encoder S - 2048 Line Diff. Encoder Termination 0 - Flying Leads

Ratio	Ratio
003 3.360:1	103 103.1:1
004 4.105:1	126 125.9:1
006 5.538:1	170 169.9:1
011 11.29:1	210 210.1:1
014 13.79:1	232 232.5:1
017 16.85:1	257 256.7:1
019 18.61:1	284 284.0:1
023 22.74:1	314 313.6:1
031 30.67:1	346 346.3:1
046 46.35:1	383 383.2:1
057 56.63:1	423 423.1:1
063 62.53:1	517 517.0:1
069 69.19:1	571 570.8:1
076 76.40:1	697 697.4:1
093 93.34:1	941 940.9:1

LRPX40

BRUSHLESS DC GEAR MOTOR

High torque density - high performance.

Applications:

Medical Science

Automated Equipment

- Fluid Pumps
- Air / Ventilation Pumps
- Blood Transfusers
- Diagnostic and Imaging Systems

Surgical Robots and Robotic Assistants

- Traction Motors for Mobile Systems
- Arm/Gripper Positioning and Force Control

Lab Automation Equipment

- Dispensing Systems
- Sample Handling Systems
- Analysis Systems
- Centrifuges

Robotics

- Traction Motors for Mobile Applications
- Steering Systems for Mobile Applications
- Arm/Gripper Positioning and Force Control

Industrial Automation

- Industrial Machinery
- Material Handling and Conveyor Equipment
- Automated Guided Vehicles (AGVs)
- Sorting and Packing Systems
- Dispensing Machines

Electronics / Semiconductor Manufacturing

- Wafer Handling and Processing Systems
- Assembly, Test and Packaging Systems

Transportation

Automotive & Commercial Vehicles

- Power Seats
- Fan & Pump Motors
- Emission Control Systems
- Drive by Wire and Driver Assist Systems
- Autonomous Vehicle Camera & Sensor Controls

Aerospace

- Flight Control Systems
- Commercial UAV Flight Motors
- Pumps / Actuators

Marine & Shipbuilding

- Gyro Stabilization Systems
- Steering Pumps

Military/Defense

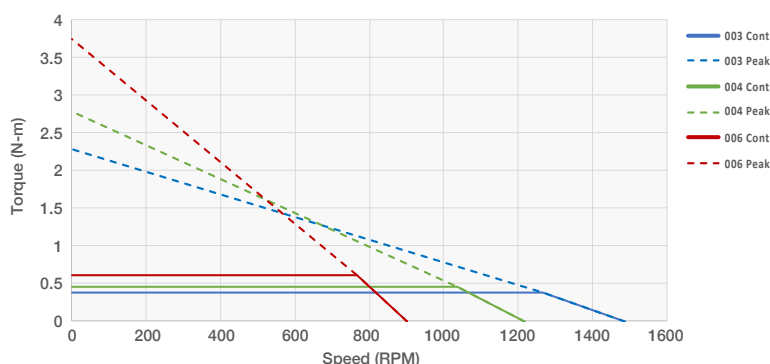
- Military Robots
- Mobile Radar and Communication Systems
- Flight Control Systems
- Military UAV Flight Motors
- Guidance Systems

Agriculture

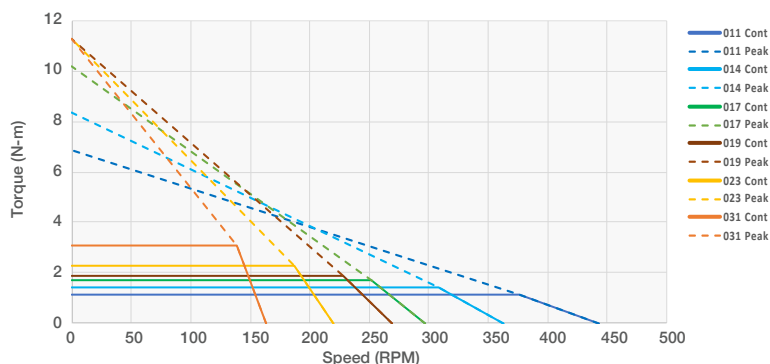
- Automated Planting Equipment
- Automated Harvesting Equipment
- Farm Machinery Control Systems
- Agricultural Robots

LRPX40 Speed Torque Performance

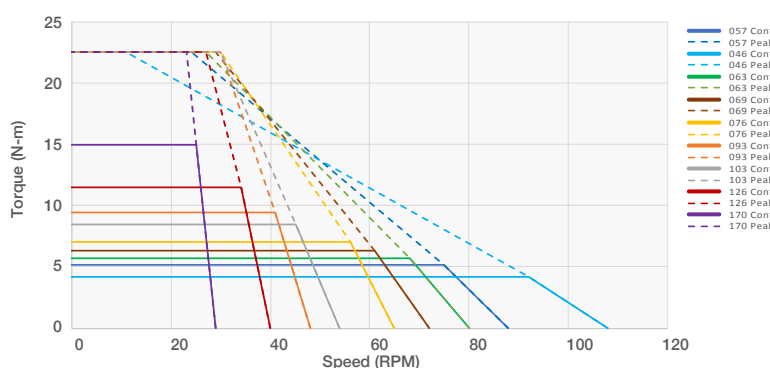
1 Stage Speed Torque



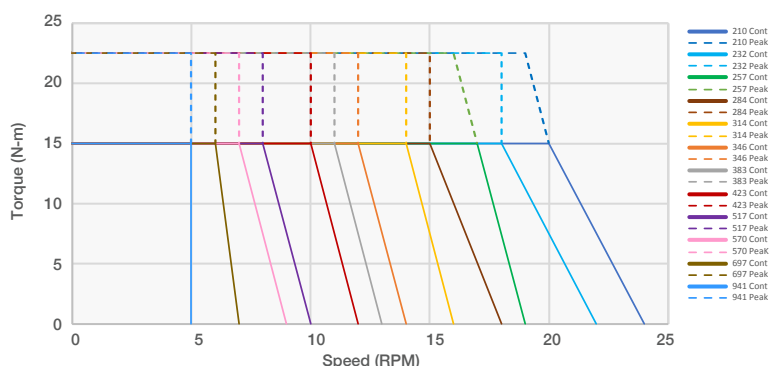
2 Stage Speed Torque



3 Stage Speed Torque



4 Stage Speed Torque



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Winding Specifications

Part Number	Voltage	Resistance	Inductance	Number of Poles	Torque Constant		Voltage Constant		Continuous Running			Peak		
Units	Volts	Ohms	mH		N-m/A	oz-in/A	V-sec/rad	V/kRPM	Torque (Nm)	RPM	Current (A)	Torque (Nm)	RPM	Current (A)

Motor Only

LRPX40-250V12	12	0.26	27.8	14	0.023	3.24	0.023	2.40	0.16	4075	6.8	0.76	725	33.3
LRPX40-250V24	24	1.10	125.4	14	0.046	6.49	0.046	4.80	0.16	4075	3.4	0.76	725	16.7
LRPX40-250V48	48	4.50	501.4	14	0.092	12.96	0.092	9.60	0.16	4075	1.7	0.76	725	8.3

One Stage Gearbox

LRPX40-250V12-___-003	12	0.26	0.028	14	0.069	9.81	0.077	8.06	0.378	1265	6.80	2.27	0	31.8
LRPX40-250V24-___-003	24	1.1	0.125	14	0.138	19.61	0.154	16.11	0.378	1265	3.40	2.27	0	15.9
LRPX40-250V48-___-003	48	4.5	0.501	14	0.277	39.18	0.307	32.19	0.378	1265	1.70	2.27	0	7.95
LRPX40-250V12-___-004	12	0.26	0.028	14	0.085	11.98	0.094	9.84	0.462	1035	6.80	2.77	0	31.8
LRPX40-250V24-___-004	24	1.1	0.125	14	0.169	23.96	0.188	19.69	0.462	1035	3.40	2.77	0	15.9
LRPX40-250V48-___-004	48	4.5	0.501	14	0.338	47.87	0.376	39.33	0.462	1035	1.70	2.77	0	7.95
LRPX40-250V12-___-006	12	0.26	0.028	14	0.114	16.16	0.127	13.28	0.623	767	6.80	3.74	0	31.8
LRPX40-250V24-___-006	24	1.1	0.125	14	0.228	32.32	0.254	26.56	0.623	767	3.40	3.74	0	15.9
LRPX40-250V48-___-006	48	4.5	0.501	14	0.456	64.58	0.507	53.06	0.623	767	1.70	3.74	0	7.95

Two Stage Gearbox

LRPX40-250V12-___-011	12	0.26	0.028	14	0.209	29.7	0.259	27.1	1.14	376	6.80	6.86	0	31.8
LRPX40-250V24-___-011	24	1.1	0.125	14	0.419	59.3	0.517	54.1	1.14	376	3.40	6.86	0	15.9
LRPX40-250V48-___-011	48	4.5	0.501	14	0.837	118.5	1.033	108.2	1.14	376	1.70	6.86	0	7.95
LRPX40-250V12-___-014	12	0.26	0.028	14	0.256	36.2	0.316	33.1	1.40	308	6.80	8.38	0	31.8
LRPX40-250V24-___-014	24	1.1	0.125	14	0.512	72.4	0.632	66.1	1.40	308	3.40	8.38	0	15.9
LRPX40-250V48-___-014	48	4.5	0.501	14	1.022	144.7	1.262	132.1	1.40	308	1.70	8.38	0	7.95
LRPX40-250V12-___-017	12	0.26	0.028	14	0.313	44.3	0.386	40.4	1.71	252	6.80	10.24	0	31.8
LRPX40-250V24-___-017	24	1.1	0.125	14	0.625	88.5	0.772	80.8	1.71	252	3.40	10.24	0	15.9
LRPX40-250V48-___-017	48	4.5	0.501	14	1.249	176.8	1.542	161.4	1.71	252	1.70	10.24	0	7.95
LRPX40-250V12-___-019	12	0.26	0.028	14	0.345	48.9	0.426	44.6	1.88	228	6.80	11.30	0	31.8
LRPX40-250V24-___-019	24	1.1	0.125	14	0.690	97.8	0.852	89.3	1.88	228	3.40	11.30	0	15.9
LRPX40-250V48-___-019	48	4.5	0.501	14	1.379	195.3	1.703	178.3	1.88	228	1.70	11.30	0	8.0
LRPX40-250V12-___-023	12	0.26	0.028	14	0.422	59.7	0.521	54.5	2.30	187	6.80	11.30	38	27.2
LRPX40-250V24-___-023	24	1.1	0.125	14	0.844	119.5	1.041	109.1	2.30	187	3.40	11.30	38	13.6
LRPX40-250V48-___-023	48	4.5	0.501	14	1.685	238.6	2.081	217.9	2.30	187	1.70	11.30	38	7.8
LRPX40-250V12-___-031	12	0.26	0.028	14	0.569	80.6	0.702	73.5	3.11	139	6.80	11.30	64	20.5
LRPX40-250V24-___-031	24	1.1	0.125	14	1.138	161.1	1.405	147.1	3.11	139	3.40	11.30	64	10.2
LRPX40-250V48-___-031	48	4.5	0.501	14	2.273	321.9	2.806	293.9	3.11	139	1.70	11.30	64	5.1

Three Stage Gearbox

LRPX40-250V12-___-046	12	0.26	0.028	14	0.774	109.6	1.061	111.1	4.22	92	6.8	22.5	11	29.5
LRPX40-250V24-___-046	24	1.1	0.125	14	1.548	219.1	2.123	222.3	4.22	92	3.4	22.5	11	14.8
LRPX40-250V48-___-046	48	4.5	0.501	14	3.092	437.8	4.241	444.1	4.22	92	1.7	22.5	11	7.4
LRPX40-250V12-___-057	12	0.26	0.028	14	0.945	133.9	1.297	135.8	5.16	75	6.8	22.5	24	24.3
LRPX40-250V24-___-057	24	1.1	0.125	14	1.891	267.7	2.594	271.6	5.16	75	3.4	22.5	24	12.2
LRPX40-250V48-___-057	48	4.5	0.501	14	3.777	534.9	5.182	542.6	5.16	75	1.7	22.5	24	6.1
LRPX40-250V12-___-063	12	0.26	0.028	14	1.044	147.8	1.432	149.9	5.70	68	6.8	22.5	27	22.1
LRPX40-250V24-___-063	24	1.1	0.125	14	2.088	295.6	2.864	299.9	5.70	68	3.4	22.5	27	11.0
LRPX40-250V48-___-063	48	4.5	0.501	14	4.171	590.6	5.721	599.1	5.70	68	1.7	22.5	27	5.5
LRPX40-250V12-___-069	12	0.26	0.028	14	1.155	163.6	1.584	165.9	6.30	61	6.8	22.5	29	20.0
LRPX40-250V24-___-069	24	1.1	0.125	14	2.310	327.1	3.169	331.8	6.30	61	3.4	22.5	29	10.0
LRPX40-250V48-___-069	48	4.5	0.501	14	4.615	653.5	6.331	662.9	6.30	61	1.7	22.5	29	5.0
LRPX40-250V12-___-076	12	0.26	0.028	14	1.275	180.6	1.750	183.2	6.96	56	6.8	22.5	30	18.2
LRPX40-250V24-___-076	24	1.1	0.125	14	2.551	361.2	3.499	366.4	6.96	56	3.4	22.5	30	9.1
LRPX40-250V48-___-076	48	4.5	0.501	14	5.096	721.6	6.991	732.0	6.96	56	1.7	22.5	30	4.6
LRPX40-250V12-___-093	12	0.26	0.028	14	1.560	220.9	2.140	224.0	8.51	45	6.8	22.5	30	15.1
LRPX40-250V24-___-093	24	1.1	0.125	14	3.119	441.7	4.279	448.1	8.51	45	3.4	22.5	30	7.5
LRPX40-250V48-___-093	48	4.5	0.501	14	6.232	882.5	8.549	895.2	8.51	45	1.7	22.5	30	3.8
LRPX40-250V12-___-103	12	0.26	0.028	14	1.721	243.7	2.361	247.2	9.39	41	6.8	22.5	30	13.7
LRPX40-250V24-___-103	24	1.1	0.125	14	3.442	487.4	4.722	494.4	9.39	41	3.4	22.5	30	6.9
LRPX40-250V48-___-103	48	4.5	0.501	14	6.877	973.8	9.434	987.8	9.39	41	1.7	22.5	30	3.4
LRPX40-250V12-___-126	12	0.26	0.028	14	2.102	297.6	2.883	301.9	11.47	34	6.8	22.5	27	11.4
LRPX40-250V24-___-126	24	1.1	0.125	14	4.204	595.2	5.766	603.8	11.47	34	3.4	22.5	27	5.7
LRPX40-250V48-___-126	48	4.5	0.501	14	8.398	1189.2	11.520	1206.3	11.47	34	1.7	22.5	27	2.9
LRPX40-250V12-___-170	12	0.26	0.028	14	2.836	401.6	3.891	407.4	15.00	25	6.1	22.5	23	8.7
LRPX40-250V24-___-170	24	1.1	0.125	14	5.673	803.2	7.781	814.8	15.00	25	3.0	22.5	23	4.3
LRPX40-250V48-___-170	48	4.5	0.501	14	11.333	1604.7	15.546	1627.84	15.00	25	1.5	22.5	23	2.2



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Winding Specifications (cont.)

Part Number	Voltage	Resistance	Inductance	Number of Poles	Torque Constant		Voltage Constant		Continuous Running			Peak		
Units	Volts	Ohms	mH		N-m/A	oz-in/A	V-sec/rad	V/kRPM	Torque (Nm)	RPM	Current (A)	Torque (Nm)	RPM	Current (A)

Four Stage Gearbox

LRPX40-250V12-___-210	12	0.26	0.028	14	3.16	447.0	4.81	503.8	15.0	20	5.54	22.5	19	7.9
LRPX40-250V24-___-210	24	1.1	0.125	14	6.31	894.0	9.62	1007.6	15.0	20	2.77	22.5	19	3.9
LRPX40-250V48-___-210	48	4.5	0.501	14	12.61	1786.0	19.22	2013.0	15.0	20	1.39	22.5	19	2.0
LRPX40-250V12-___-232	12	0.26	0.028	14	3.49	494.6	5.32	557.5	15.0	18	5.09	22.5	18	7.2
LRPX40-250V24-___-232	24	1.1	0.125	14	6.99	989.3	10.65	1115.0	15.0	18	2.54	22.5	18	3.6
LRPX40-250V48-___-232	48	4.5	0.501	14	13.96	1976.4	21.27	2227.6	15.0	18	1.27	22.5	18	1.8
LRPX40-250V12-___-257	12	0.26	0.028	14	3.86	546.1	5.88	615.5	15.0	17	4.69	22.5	16	6.6
LRPX40-250V24-___-257	24	1.1	0.125	14	7.71	1092.3	11.76	1231.1	15.0	17	2.35	22.5	16	3.3
LRPX40-250V48-___-257	48	4.5	0.501	14	15.41	2182.1	23.49	2459.5	15.0	17	1.17	22.5	16	1.7
LRPX40-250V12-___-284	12	0.26	0.028	14	4.27	604.2	6.50	681.0	15.0	15	4.32	22.5	15	6.1
LRPX40-250V24-___-284	24	1.1	0.125	14	8.53	1208.4	13.01	1362.0	15.0	15	2.16	22.5	15	3.0
LRPX40-250V48-___-284	48	4.5	0.501	14	17.05	2414.2	25.99	2721.0	15.0	15	1.08	22.5	15	1.5
LRPX40-250V12-___-314	12	0.26	0.028	14	4.71	667.2	7.18	752.0	15.0	14	4.00	22.5	14	5.6
LRPX40-250V24-___-314	24	1.1	0.125	14	9.42	1334.4	14.36	1504.0	15.0	14	2.00	22.5	14	2.8
LRPX40-250V48-___-314	48	4.5	0.501	14	18.83	2665.8	28.69	3004.6	15.0	14	1.00	22.5	14	1.4
LRPX40-250V12-___-346	12	0.26	0.028	14	5.20	736.8	7.93	830.4	15.0	12	3.70	22.5	12	5.1
LRPX40-250V24-___-346	24	1.1	0.125	14	10.41	1473.5	15.86	1660.8	15.0	12	1.85	22.5	12	2.6
LRPX40-250V48-___-346	48	4.5	0.501	14	20.79	2943.8	31.69	3318.0	15.0	12	0.92	22.5	12	1.3
LRPX40-250V12-___-383	12	0.26	0.028	14	5.76	815.3	8.78	918.9	15.0	11	3.43	22.5	11	4.7
LRPX40-250V24-___-383	24	1.1	0.125	14	11.51	1630.5	17.55	1837.8	15.0	11	1.71	22.5	11	2.4
LRPX40-250V48-___-383	48	4.5	0.501	14	23.00	3257.5	35.06	3671.5	15.0	11	0.86	22.5	11	1.2
LRPX40-250V12-___-423	12	0.26	0.028	14	6.36	900.1	9.69	1014.6	15.0	10	3.18	22.5	10	4.3
LRPX40-250V24-___-423	24	1.1	0.125	14	12.71	1800.3	19.38	2029.1	15.0	10	1.59	22.5	10	2.2
LRPX40-250V48-___-423	48	4.5	0.501	14	25.40	3596.6	38.71	4053.8	15.0	10	0.80	22.5	10	1.1
LRPX40-250V12-___-517	12	0.26	0.028	14	7.77	1099.9	11.84	1239.7	15.0	8	2.76	22.5	8	3.7
LRPX40-250V24-___-517	24	1.1	0.125	14	15.54	2199.8	23.68	2479.4	15.0	8	1.38	22.5	8	1.9
LRPX40-250V48-___-517	48	4.5	0.501	14	31.04	4394.9	47.31	4953.5	15.0	8	0.69	22.5	8	0.9
LRPX40-250V12-___-571	12	0.26	0.028	14	8.56	1212.7	13.05	1366.8	15.0	7	2.59	22.5	7	3.4
LRPX40-250V24-___-571	24	1.1	0.125	14	17.13	2425.3	26.11	2733.6	15.0	7	1.29	22.5	7	1.7
LRPX40-250V48-___-571	48	4.5	0.501	14	34.22	4845.4	52.16	5461.3	15.0	7	0.65	22.5	7	0.9
LRPX40-250V12-___-697	12	0.26	0.028	14	10.48	1483.7	15.97	1672.3	15.0	6	2.27	22.5	6	3.0
LRPX40-250V24-___-697	24	1.1	0.125	14	20.96	2967.4	31.94	3344.6	15.0	6	1.14	22.5	6	1.5
LRPX40-250V48-___-697	48	4.5	0.501	14	41.87	5928.4	63.81	6681.9	15.0	6	0.57	22.5	6	0.7
LRPX40-250V12-___-941	12	0.26	0.028	14	14.14	2001.8	21.55	2256.2	15.0	5	1.91	22.5	5	2.4
LRPX40-250V24-___-941	24	1.1	0.125	14	28.27	4003.5	43.09	4512.4	15.0	5	0.95	22.5	5	1.2
LRPX40-250V48-___-941	48	4.5	0.501	14	56.49	7998.3	86.09	9014.9	15.0	5	0.48	22.5	5	0.6



General Spec. Table

Part Number	Ratio (approx.)	Ratio (Exact)	Backlash (avg) (Degrees)	Length (Motor + Gearhead) (mm)	Weight (g)	Temperature Range (°C)
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One Stage Gearbox

LRPX40-250V__-__-__-003	3.36	84 / 25	0.8	82.3	527	-40 °C to +100 °C
LRPX40-250V__-__-__-004	4.11	78 / 19	0.7	82.3	527	-40 °C to +100 °C
LRPX40-250V__-__-__-006	5.54	72 / 13	0.7	82.3	527	-40 °C to +100 °C

Two Stage Gearbox

LRPX40-250V__-__-__-011	11.29	7056 / 625	1.0	99.9	602	-40 °C to +100 °C
LRPX40-250V__-__-__-014	13.79	6552 / 475	1.0	99.9	602	-40 °C to +100 °C
LRPX40-250V__-__-__-017	16.85	6084 / 361	0.8	99.9	602	-40 °C to +100 °C
LRPX40-250V__-__-__-019	18.61	6048 / 325	1.0	99.9	602	-40 °C to +100 °C
LRPX40-250V__-__-__-023	22.74	432 / 19	0.8	99.9	602	-40 °C to +100 °C
LRPX40-250V__-__-__-031	30.67	5184 / 169	0.8	99.9	602	-40 °C to +100 °C

Three Stage Gearbox

LRPX40-250V__-__-__-046	46.35	550368 / 11875	1.1	111.7	665	-40 °C to +100 °C
LRPX40-250V__-__-__-057	56.63	511056 / 9025	1.0	111.7	665	-40 °C to +100 °C
LRPX40-250V__-__-__-063	62.53	508032 / 8125	1.1	111.7	665	-40 °C to +100 °C
LRPX40-250V__-__-__-069	69.19	474552 / 6859	0.9	111.7	665	-40 °C to +100 °C
LRPX40-250V__-__-__-076	76.40	36288 / 475	1.0	111.7	665	-40 °C to +100 °C
LRPX40-250V__-__-__-093	93.34	33696 / 361	0.9	111.7	665	-40 °C to +100 °C
LRPX40-250V__-__-__-103	103.07	435456 / 4225	1.0	111.7	665	-40 °C to +100 °C
LRPX40-250V__-__-__-126	125.93	31104 / 247	0.9	111.7	665	-40 °C to +100 °C
LRPX40-250V__-__-__-170	169.89	373248 / 2197	0.8	111.7	665	-40 °C to +100 °C

Four Stage Gearbox

LRPX40-250V__-__-__-210	210.09	42674688 / 203125	1.1	123.6	727	-40 °C to +100 °C
LRPX40-250V__-__-__-232	232.47	39862368 / 171475	1.0	123.6	727	-40 °C to +100 °C
LRPX40-250V__-__-__-257	256.69	3048192 / 11875	1.1	123.6	727	-40 °C to +100 °C
LRPX40-250V__-__-__-284	284.03	37015056 / 130321	0.9	123.6	727	-40 °C to +100 °C
LRPX40-250V__-__-__-314	313.62	2830464 / 9025	1.0	123.6	727	-40 °C to +100 °C
LRPX40-250V__-__-__-346	346.30	36578304 / 105625	1.1	123.6	727	-40 °C to +100 °C
LRPX40-250V__-__-__-383	383.19	2628288 / 6859	0.9	123.6	727	-40 °C to +100 °C
LRPX40-250V__-__-__-423	423.12	2612736 / 6175	1.0	123.6	727	-40 °C to +100 °C
LRPX40-250V__-__-__-517	516.96	186624 / 361	0.9	123.6	727	-40 °C to +100 °C
LRPX40-250V__-__-__-571	570.83	31352832 / 54925	1.0	123.6	727	-40 °C to +100 °C
LRPX40-250V__-__-__-697	697.44	2239488 / 3211	0.9	123.6	727	-40 °C to +100 °C
LRPX40-250V__-__-__-941	940.93	26873856 / 28561	0.8	123.6	727	-40 °C to +100 °C



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