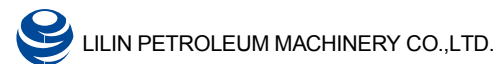


Downhole Motor



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CATALOGUE

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Longer Running Life

High Torque

High ROP

High RPM



1 Company Profile

LILIN is the largest manufacturer specialized in downhole motor applied in drilling well of oil, gas, mining and water all over the world. In 2008, quantity of downhole motor made from LILIN achieved to 8000 units with 55% market share in china.

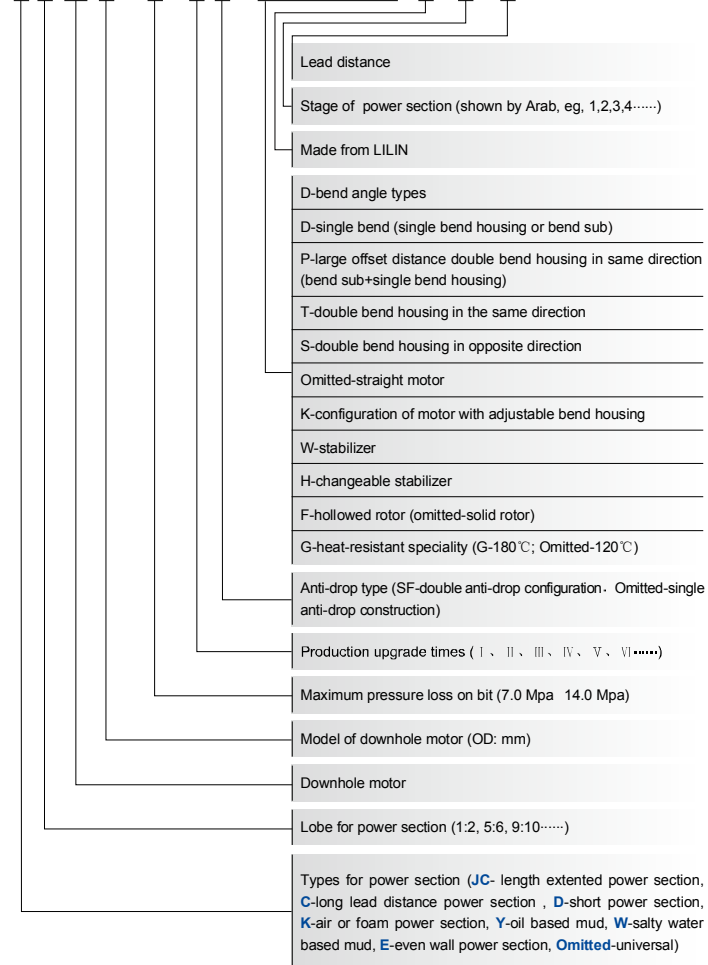
Downhole motor in different sizes and models (eg: adjustable downhole motor, oil-based downhole motor, salty mud-based downhole motor.....). Moreover, LILIN can produce the motor according to the special requirement from customers.

Downhole motor in LILIN is produced on the base of 1,000,000 m² area factory, nearly 2000 employee and thousands units of equipment. Besides, strong technical support and product invention group is another advantage for LILIN downhole motor.

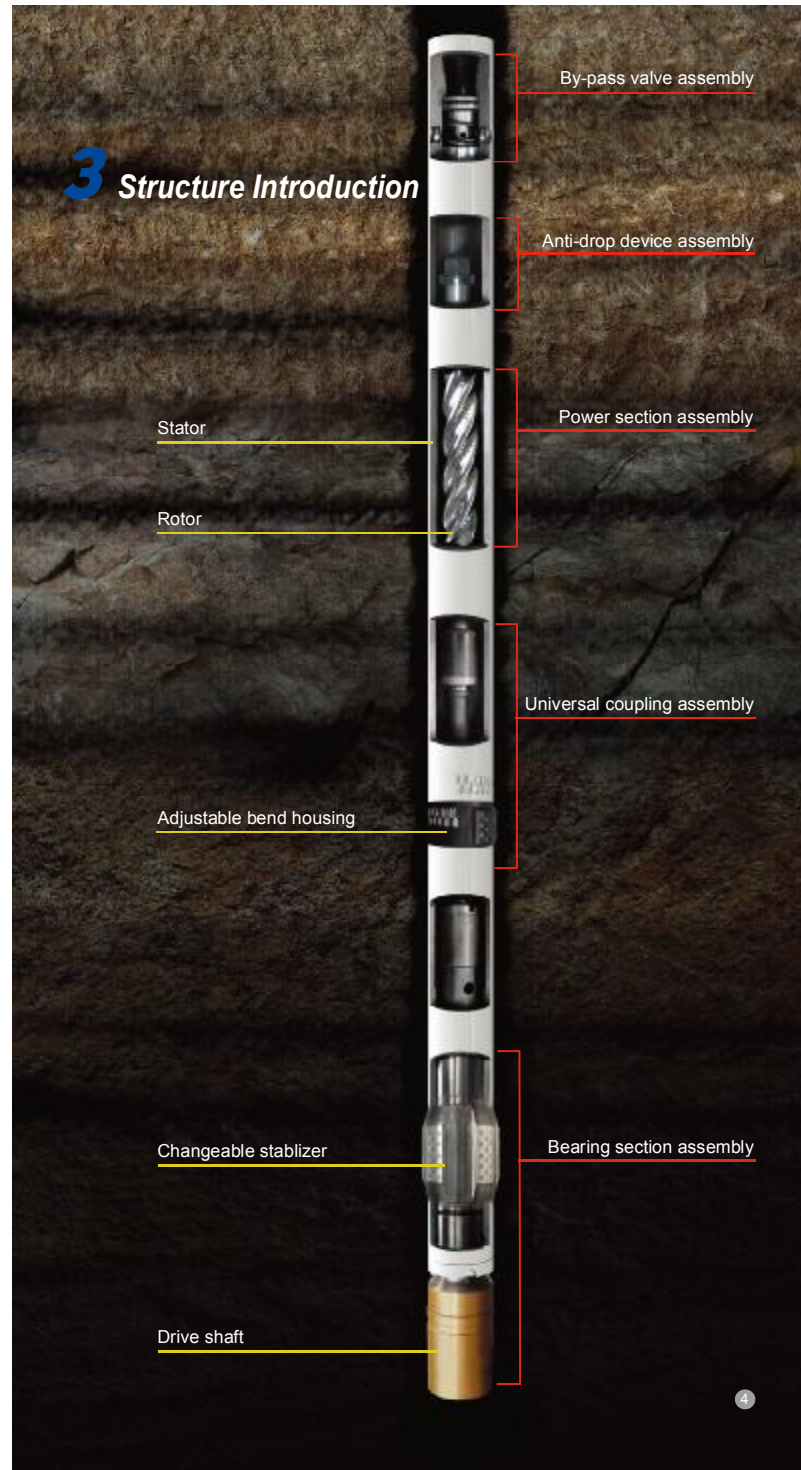
As for the quality system, ISO 9001 certificate, ISO 14001 environment system certificate, API Spec 7-1 certificate supply quality guarantee for LILIN products.

2 Model Instruction

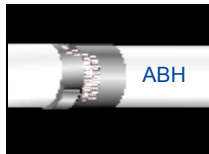
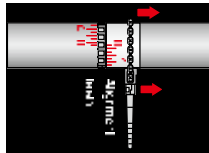
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3 Structure Introduction

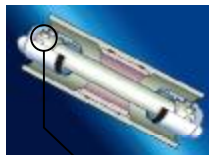


1 Adjustable Bend Housing



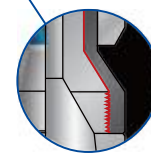
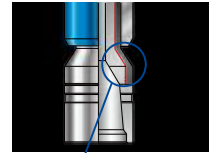
Bend angle will be different in different drilling well from directional well, well in large pitch, horizontal well and so on. New design on universal coupling is applied to downhole motor with adjustable bend housing achieving 19 points for adjust ranging from 0 degree to 4 degree, avoiding the disadvantages of shorter running life, easier corrosion on bare surface of flat universal coupling, accordingly extending the running life of downhole motor.

2 Bearing Section Assembly in New Transmission Seal



New design of transmission seal applied to bearing section assembly increasing the size of contact area effectively between transmission parts, decreasing the contact stress between the parts is helpful to improve the carrying capability and extend the running life of universal coupling.

3 Anti-break Device on Drive Shaft



Carrying capability of the drive shaft is raised by improving material, meliorating technics, perfecting structure design and dilminating stress point, which makes downhole motor suitable for drilling in super deep well such as directional well with large pitch or horizontal well and for oriented rotary drilling.

4 Anti-drop Device on Rotor



Anti-dropping of rotor can be achieved by employing anti-drop device in downhole motor if rupture and thread taken off happens on the housing. Meanwhile, rise of the pressure loss of pump makes operator on earth discover the problems timely to avoid the accident.

5 Even Wall Power Section



Even wall power section invented by LILIN will extend running life of downhole motor and improve running efficiency of the motor. The characteristics are:



- Good cooling speciality improves the running life of the stator.
- Working stability is risen by even swell of the rubber.
- System efficiency is risen up by high pressure bear on single stage.
- Conglutinant size is increased by rising up the contact between rubber and the metal.

6 Heat-resistant Power Section



Elastomer in the stator of anti-resistant power section made by special technics guarantees well-balanced running of stator under 180°C. As a result, the stator can be employed into high temp drilling well and deep drilling well.



7 Surface of Rotor



Common thechnics on chroming coating depending on the surface shape of the rotor creates large tolerance between actual streamline and the academic streamline of the rotor, which will reduce the efficiency of the power section. Special chroming coating technics by LILIN will control the rate between apex and vale of the coating attaching to 1:1.



Rotor Chroming Coating 1:1

Tungsten Carbide coating rotor can be supplied by LILIN achieving well running under salty water based mud, which successfully solves the corrosion problem of chroming rotor in saturated salty water based mud.

8 Material Management of Core Parts



Core parts are of significance in downhole motor running. Especially, special upgrade on technics of universal coupling and on forging of drive shaft will secure the durable capacity of the spare parts prolonging the running life of the complete downhole motor.



9 Low / Medium / High Speed Power Section

Power section in various lobes, stages and lead distance can be designed according to drilling parameters.

High Speed / Low Torque Power Section



Power section in this type is suitable to PDC bit, soft formation and directional drilling operation.

Medium Speed / Medium Torque Power Section



Motor with lobe 5:6 is commonly used in generally directional and horizontal drilling well. For example, motor in 5:6 lobe can be used by matching with PDC bit and tricone bit for drilling rock.

Low Speed / High Torque Power Section



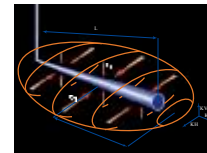
Motor with lobe 7:8 is commonly used in medium hard formation for directional drilling and horizontal drilling matching with PDC bit or tricone bit.

10 Oil Seal Drive Shaft

Lubricating grease is sealed by highly effective sealing devices on the two sides of the oil sealed drive shaft. In addition, pressure loss in the drive shaft can be coordinated by the change of outer pressure, which makes the pressure loss between inside and outside be in balance to prolong the running life of the sealing device.

Thrust bearings in new structure instead of the old thrust bearing enlarges inner space, increases the diameter of section of drive shaft to improve the over loading capability.

11 Non-Magnetic Downhole Motor



Cross-over sub, stator and rotor of non-magnetic motor are made of non-magnetic material. So, non-magnetic drilling collar is not necessary for such motor, which reduces the distance from measuring point to bit and improves the accuracy of the motor. This technique solves the interruption problem on measuring instrument due to the magnetism from complete downhole motor, achieving accurate measuring result. Non-magnetic motor is widely used in oil and coal drilling field.

12 Pipelining on Elastomer Injection of Stator



Elastomer injection pipelining of stator is one unit of injection system which including automoizaion steps on material transporting, weighing, mixing, cooling, etc..., avoiding the manure operation error and improving the quality of the product. At present, 200 pieces of stator per day is available for LILIN .



13 LILIN Stator Admeasuring Apparatus



Stator Admeasuring Apparatus of LILIN is specially used to measure ID of the stator, supplying the basic guarantee for ID measuring of the stator. LILIN admeasuring apparatus with characteristics in higher technics, more accuracy compared to other testing tools is available to supply accurate measure data to stator, securing the prefect fit between stator and the rotor. Additionally, LILIN stator admeasuring apparatus is widley usded in ID measuring for spiral teeth tools.

14 LILIN Hydraulic Breakout Unit



Hydraulic breakout unit used for motor assemble and disassemble is one automatic device with six claws clipping and bilateral sliding achieving clamping, sliding, spinning and drawing in series, which reduces the labor strength and improves the working efficiency.



15 LILIN Downhole Motor Tester



Power section tester is used in measuring the fit between rotor and stator of downhole motor, evaluating the reasonable degree of streamline on power section and showing the testing parameters.



Downhole motor tester invented by LILIN is used to testing the running function of complete downhole motor. LILIN downhole motor tester realizes the parameters test on output torque, transporting torque, pressure loss test between outlet and inlet and the parameter test on the flowrate.

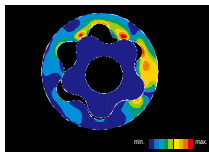
5 Outstanding Technology & Project

Project Analysis and Application



Many CAE technology are applied to the project by LILIN, such as contact analysis, hydrodynamics analysis, static finite element analysis, fatigue running life expect analysis, for configuration optimization and compostive mechnics analysis of downhole motor. At present, complete downhole motor design and analysis system are finished, which make technics of downhole motor be on the top of international maket.

Finite Element Analysis

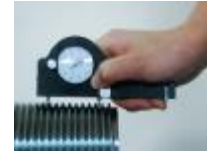


Running evironment with high torque and high rotary speed is simulated for the data which is useful for our revising design and removing the heat disadvantage on the friction contact.

Three-dimensional parameter analysis is applied to analyse the distortion stress, optimize design choice, gurantee the streamline and realize reasonable lobe, attaining the perfect fit between stator and rotor.

6 Quality&Service System

Quality System



ISO Global quality system is the main quality management standard for us to strictly inspect technics and instantly upgrade the testing level, representing our responsible spirit for our product.

API symbol utility suply the complete control for our product making all the manufacture steps under our control.

Service System



Additionally, we pay our attention to product service extension. Strong technological service team supplies the technical guide and help timely. Moreover, product after-sale service keep in pace with the prodcut use, making LILIN go with clients together.

7 Technological Parameters

Model	Tool OD		Bit Size		Connecting Thread		Lobe	Stage	Flow Rate		Rotary Speed	Working Pressure Loss	Output Torque		Max Pressure Loss	Max Torque		Working Pressure	Max Pressure	Output Power
	mm	in	mm	in	up	down			lpm	gpm			N.m	lb-ft		N.m	lb-ft			
5LZ43x7.0 L-4-192	43	1 11/16	48-76	1 7/8-3	1AMMT	1AMMT	5:6	4	48-96	13-26	435-870	3.2 466	56 42	4.52 655	79 58	3 660	6 1320	6.5 9		
5LZ45x7.0 L-3-600	45	1 3/4	48-76	1 7/8-3	1AMMT	1AMMT	5:6	3	57-170	15-45	228-680	2.4 350	85 62	3.39 495	125 90	3 660	6 1320	8 11		
5LZ54x7.0 L-3-360	54	2 1/8	60-89	2 3/8-3 1/2	1 1/2REG	1 1/2REG	5:6	3	106-240	28-64	282-638	2.4 350	130 96	3.39 495	182 135	4 880	8 1760	11 15		
7LZ54x7.0 L-4-416	54	2 1/8	60-89	2 3/8-3 1/2	1 1/2REG	1 1/2REG	7:8	4	150-300	40-79	292-585	3.2 466	235 173	4.52 655	332 245	4 880	8 1760	20 27		
5LZ60x7.0 L-3-600	60	2 3/8	79-111	3 1/8-4 3/8	1 1/2REG	1 1/2REG	5:6	3	140-280	38-75	298-595	2.4 350	156 115	3.39 495	218 160	5 1100	10 2200	12 16		
LZ73x7.0 L-7-400	73	2 7/8	95-121	3 3/4-4 3/4	2 3/8REG	2 3/8REG	5:6	7	102-205	27-55	400-810	5.6 817	204 151	7.91 1154	288 212	12 2640	25 5500	22 28		
5LZ73x7.0 L-3-600	73	2 7/8	95-121	3 3/4-4 3/4	2 3/8REG	2 3/8REG	5:6	3	162-578	76-153	121-432	2.4 350	460 339	3.39 495	650 479	12 2640	25 5500	27 36		
5LZ73x7.0 L-4-600	73	2 7/8	95-121	3 3/4-4 3/4	2 3/8REG	2 3/8REG	5:6	4	162-578	76-153	121-432	3.2 466	613 452	4.52 655	867 639	12 2640	25 5500	36 48		
5LZ79x7.0 L-4-600	79	3 1/8	95-121	3 3/4-4 3/4	2 3/8REG	2 3/8REG	5:6	4	162-578	76-153	121-432	3.2 466	613 452	4.52 655	867 639	12 2640	25 5500	36 48		
7LZ79x7.0 L-4-400	79	3 1/8	95-121	3 3/4-4 3/4	2 3/8REG	2 3/8REG	7:8	4	140-419	37-111	138-413	3.2 466	465 342	4.52 655	617 455	12 2640	25 5500	24 32		
JC7LZ79x7.0 L-4-720	79	3 1/8	95-121	3 3/4-4 3/4	2 3/8REG	2 3/8REG	7:8	4	252-755	66-200	138-413	3.2 466	745 548	4.52 655	1050 775	12 2640	25 5500	40 55		
9LZ79x7.0 L-4-600	79	3 1/8	95-121	3 3/4-4 3/4	2 3/8REG	2 3/8REG	9:10	4	162-578	76-153	97-347	3.2 466	676 490	4.52 655	954 703	12 2640	25 5500	37 49		
9LZ79x7.0 L-5-600	79	3 1/8	95-121	3 3/4-4 3/4	2 3/8REG	2 3/8REG	9:10	5	162-578	76-153	97-347	4.0 585	845 608	5.65 824	1192 878	12 2640	25 5500	46 62		
4LZ89x7.0 L-4-600	89	3 1/2	107-121	4 1/4-4 3/4	2 3/8REG	2 3/8REG	4:5	4	265-570	70-150	180-390	3.2 466	634 467	4.52 655	895 660	22 4400	35 7700	34 45		
4LZ89x7.0 L-5-600	89	3 1/2	114-149	4 1/2-5 7/8	2 3/8REG	2 3/8REG	4:5	5	190-570	50-150	140-420	4.0 585	726 535	5.65 824	1025 756	22 4400	35 7700	40 54		
5LZ89x7.0 L-4-600	89	3 1/2	114-149	4 1/2-5 7/8	2 3/8REG	2 3/8REG	5:6	4	255-766	67-202	108-325	3.2 466	1080 800	4.52 655	1526 1126	22 4400	35 7700	47 63		
7LZ89x7.0 L-3-8-720	89	3 1/2	107-121	4 1/4-4 3/4	2 3/8REG	2 3/8REG	7:8	3.8	170-490	45-130	74-215	3.04 440	952 702	4.29 622	1342 990	22 4400	35 7700	28 37		
LZ95x7.0 L-4-720	95	3 3/4	118-149	4 5/8-5 7/8	2 7/8REG	2 7/8REG	1:2	4	150-450	40-119	160-478	3.2 466	432 319	4.52 655	574 423	30 6600	55 12100	26 35		
4LZ95x7.0 L-5-600	95	3 3/4	118-149	4 5/8-5 7/8	2 7/8REG	2 7/8REG	4:5	5	270-720	71-190	129-340	4 585	1190 880	5.65 824	1680 1240	30 6600	55 12100	59 80		
5LZ95x7.0 L-3-600	95	3 3/4	118-149	4 5/8-5 7/8	2 7/8REG	2 7/8REG	5:6	3	320-800	85-211	124-300	2.4 350	833 615	3.39 495	1177 868	30 6600	55 12100	32 43		
5LZ95x7.0 L-5-600	95	3 3/4	118-149	4 5/8-5 7/8	2 7/8REG	2 7/8REG	5:6	5	320-800	85-211	124-300	4 585	1388 1025	5.65 824	1962 1447	30 6600	55 12100	53 72		
7LZ95x7.0 L-3-600	95	3 3/4	118-149	4 5/8-5 7/8	2 7/8REG	2 7/8REG	7:8	3	389-778	102-205	167-335	2.4 350	710 525	3.39 495	1000 740	30 6600	55 12100	32 43		
K7LZ95x7.0 L-2	95	3 3/4	118-149	4 5/8-5 7/8	2 7/8REG	2 7/8REG	7:8	2	480-960	127-254	87-174	1.6 232	1129 832	2.26 328	1595 1176	30 6600	55 12100	24 32		
7LZ95x7.0 L-10-1-520	95	3 3/4	118-149	4 5/8-5 7/8	2 7/8REG	2 7/8REG	7:8	10.1	300-680	80-180	150-340	8.08 1170	2212 1632	11.41 1655	3125 2305	30 6600	55 12100	100 135		
7LZ95x7.0 L-6-7-616	95	3 3/4	118-149	4 5/8-5 7/8	2 7/8REG	2 7/8REG	7:8	6.7	300-610	80-160	126-257	5.36 777	1738 1280	7.57 1098	2455 1810	30 6600	55 12100	60 81		
9LZ95x7.0 L-4-600	95	3 3/4	118-149	4 5/8-5 7/8	2 7/8REG	2 7/8REG	9:10	4	460-928	120-245	139-280	3.2 466	1426 1052	4.52 655	1895 1320	30 6600	55 12100	48 64		
5LZ105x7.0 L-4-600	105	4 1/8	121-152	4 3/4-6	2 7/8REG	2 7/8REG	5:6	4	450-900	120-240	146-292	3.2 466	1248 920	4.52 655	1656 1222	30 6600	55 12100	46 61		
9LZ105x7.0 L-4-600	105	4 1/8	121-152	4 3/4-6	2 7/8REG	2 7/8REG	9:10	4	498-997	131-263	132-265	3.2 466	1630 1200	4.52 655	2165 1597	30 6600	55 12100	51 68		
9LZ105x7.0 L-5-600	105	4 1/8	121-152	4 3/4-6	2 7/8REG	2 7/8REG	9:10	5	498-997	131-263	132-265	4 585	2037 1503	5.65 824	2706 1995	30 6600	55 12100	63 85		
2LZ120x7.0 L-3-8-720	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	2:3	4	454-909	120-240	180-360	3.2 466	1030 760	4.52 655	1367 1008	49 10803	100 22000	46 62		
4LZ120x7.0 L-6-725	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	4:5	6	495-990	131-262	150-300	4.8 700	2137 1576	6.78 988	3019 2226	49 10803	100 22000	81 108		
4LZ120x7.0 L-5-725	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	4:5	5	495-990	131-262	150-300	4 585	1780 1313	5.65 824	2515 1855	49 10803	100 22000	71 95		
5LZ120x7.0 L-3-900	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	5:6	3	694-1388	184-367	140-278	2.4 350	1620 1195	3.39 495	2288 1688	49 10803	100 22000	57 76		
5LZ120x7.0 L-4-900	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	5:6	4	694-1388	184-367	140-278	3.2 466	2160 1593	4.52 655	2869 2116	49 10803	100 22000	71 95		
5LZ120x7.0 L-5-864	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	5:6	5	650-1300	171-342	140-280	4 585	2344 1730	5.65 824	3312 2442	49 10803	100 22000	87 117		
K7LZ120x7.0 L-2	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	7:8	2	603-1206	159-318	60-120	1.6 232	2074 1530	2.26 328	2930 2161	49 10803	100 22000	33 45		
C7LZ120x7.0 L-3-1200	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	7:8	3	745-1489	196-393	98-196	2.4 350	2468 1819	3.39 495	3277 2417	49 10803	100 22000	60 81		
7LZ120x7.0 L-4-896	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	7:8	4	745-1489	196-393	130-261	3.2 466	2468 1819	4.52 655	3277 2417	49 10803	100 22000	75 102		
7LZ120x7.0 L-6.5-896	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	7:8	6.5	745-1489	196-393	130-261	5.2 757	4010 2956	7.35 1065	5325 3938	49 10803	100 22000	122 166		
7LZ120x7.0 L-7-624	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	7:8	7	516-1030	130-273	128-256	5.6 817	2829 2087	7.91 1154	3997 2848	49 10803	100 22000	85 114		
9LZ120x7.0 L-3-6-1450	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	9:10	3.6	745-1489	196-393	72-143	2.88 421	3685 2717	4.1 590	5245 3868	49 10803	100 22000	71 95		
9LZ120x7.0 L-4-900	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	9:10	4	745-1489	196-393	115-230	3.2 466	2546 1873	4.52 655	3588 2646	49 10803	100 22000	77 104		
9LZ120x7.0 L-6.5-900	120	4 3/4	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	9:10	6.5	745-1489	196-393	115-230	5.2 757	4137 3043	7.35 1065	5830 4300	49 10803	100 22000	126 169		
2LZ127x7.0 L-4-900	127	5	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	2:3	4	454-909	120-240	180-360	3.2 466	1030 760	4.52 655	1367 1008	49 10803	100 22000	46 62		
4LZ127x7.0 L-6-725	127	5	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	4:5	6	495-990	131-262	150-300	4.8 700	2137 1576	6.78 988	3019 2226	49 10803	100 22000	81 108		

7 Technological Parameters

Model	Tool OD		Bit Size		Connecting Thread		Lobe	Stage	Flow Rate		Rotary Speed	Working Pressure Loss	Output Torque		Max Pressure Loss		Max Torque		Working Pressure	Max Pressure		Output Power			
	mm	in	mm	in	up	down			lpm	gpm			N.m	lb-ft	Mpa	psi	N.m	lb-ft		KN	lb		KN	lb	KW
4LZ127x7.0 L-5-725	127	5	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	4:5	5	495-990	131-262	150-300	4	585	1780	1313	5.65	824	2515	1855	49	10803	100	22000	71	95
5LZ127x7.0 L-3-900	127	5	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	5:6	3	694-1388	184-367	140-278	2.4	350	1620	1195	3.39	495	2288	1688	49	10803	100	22000	57	76
5LZ127x7.0 L-4-900	127	5	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	5:6	4	694-1388	184-367	140-278	3.2	466	2160	1593	4.52	655	2869	2116	49	10803	100	22000	71	95
5LZ127x7.0 L-5-864	127	5	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	5:6	5	650-1300	171-342	140-280	4	585	2344	1730	5.65	824	3312	2442	49	10803	100	22000	87	117
7LZ127x7.0 L-4-896	127	5	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	7:8	4	745-1489	196-393	130-261	3.2	466	2468	1819	4.52	655	3277	2417	49	10803	100	22000	75	102
7LZ127x7.0 L-7-624	127	5	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	7:8	7	516-1030	130-273	128-256	5.6	817	2829	2087	7.91	1154	3997	2848	49	10803	100	22000	85	114
9LZ127x7.0 L-4-900	127	5	149-200	5 7/8-7 7/8	3 1/2REG	3 1/2REG	9:10	4	745-1489	196-393	115-230	3.2	466	2546	1873	4.52	655	3588	2646	49	10803	100	22000	77	104
5LZ140x7.0 L-4-810	140	5 1/2	171-222	6 3/4-8 3/4	4 1/2REG	4 1/2REG	5:6	4	718-1436	190-379	101-202	3.2	466	2613	1927	4.52	655	3471	2560	49	10803	100	22000	73	98
7LZ140x7.0 L-5-810	140	5 1/2	171-222	6 3/4-8 3/4	4 1/2REG	4 1/2REG	7:8	5	794-1587	210-419	95-190	4	585	3848	2838	5.65	824	5436	4009	49	10803	100	22000	98	131
5LZ159x7.0 L-5-840	159	6 1/4	171-222	6 3/4-8 3/4	4 1/2REG	4 1/2REG	5:6	5	828-1656	219-438	88-177	4	585	4221	3113	5.65	824	5962	4397	80	17600	160	35200	111	148
7LZ159x7.0 L-3-1120	159	6 1/4	171-222	6 3/4-8 3/4	4 1/2REG	4 1/2REG	7:8	3	828-1656	219-438	67-135	2.4	350	3775	2784	3.39	495	5332	3932	80	17600	160	35200	68	90
LZ165x7.0 L-4-840	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	1:2	4	450-899	119-237	163-325	3.2	466	1018	751	4.52	655	1352	997	49	10803	100	22000	46	62
5LZ165x7.0 L-3-5-660	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	3.5	686-1371	181-362	87-174	2.8	408	2555	1885	3.955	577	3609	2662	80	17600	160	35200	66	88
4LZ165x7.0 L-7-770	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	4:5	7	730-1460	193-386	109-217	5.6	815	4799	3539	7.91	1147	6778	4998	80	17600	160	35200	139	186
5LZ165x7.0 L-4-840	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	4	862-1724	228-456	87-174	3.2	466	3673	2709	4.52	655	4878	3597	80	17600	160	35200	88	119
5LZ165x7.0 L-5-840	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	5	862-1724	228-456	87-174	4	585	4590	3386	5.65	824	6484	4783	80	17600	160	35200	100	135
5LZ165x7.0 L-6-840	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	6	862-1724	228-456	87-174	4.8	700	5509	4063	6.78	988	7781	5739	80	17600	160	35200	121	162
7LZ165x7.0 L-3-8-1890	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	7:8	3.8	1200-2400	317-634	51-103	3.04	440	8975	6620	4.3	624	12700	9366	80	17600	160	35200	123	165
K9LZ165x7.0 L-2	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	2	1148-2296	303-606	55-110	1.6	232	4374	3226	2.26	328	6178	4556	80	17600	160	35200	64	86
JC9LZ165x7.0 L-3-1690	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	3	1110-2220	293-586	51-103	2.4	350	6560	4838	3.39	495	9264	6838	80	17600	160	35200	90	120
JC9LZ165x7.0 L-3-7-1370	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	3.7	1110-2220	293-586	51-103	2.96	430	6550	4832	4.18	610	9259	6832	80	17600	160	35200	90	120
9LZ165x7.0 L-4-840	165	6 1/2	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	4	990-1979	262-523	93-187	3.2	466	4579	3377	4.52	655	6082	4485	80	17600	160	35200	98	132
LZ172x7.0 L-4-840	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	1:2	4	450-899	119-237	191-382	3.2	466	1018	751	4.52	655	1352	997	80	17600	160	35200	46	62
2LZ172x7.0 L-8-780	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	2:3	8	590-1180	156-312	120-240	6.4	933	4011	2958	9.04	1318	5566	4179	100	22000	170	37400	126	168
2LZ172x7.0 L-7-780	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	2:3	7	590-1180	156-312	120-240	5.6	817	3510	2588	7.91	1154	4958	3656	100	22000	170	37400	110	147
3LZ172x7.0 L-6-840	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	3:4	6	770-1539	204-407	130-220	4.8	700	4660	4854	6.78	988	6580	4854	100	22000	170	37400	126	206
4LZ172x7.0 L-7-770	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	4:5	7	833-1665	220-440	102-205	5.6	817	6158	4541	7.91	1154	8698	6415	100	22000	170	37400	154	206
5LZ172x7.0 L-4-840	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	4	947-2100	250-550	78-205	4.8	700	6300	4600	6.78	988	8900	6500	100	22000	170	37400	170	228
5LZ172x7.0 L-4-840	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	4	947-1894	250-500	78-154	3.2	466	4160	3068	4.52	655	5525	4075	100	22000	170	37400	126	170
5LZ172x7.0 L-5-840	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	5	947-1894	250-500	78-154	4	585	5200	3835	5.65	824	7345	5417	100	22000	170	37400	118	159
5LZ172x7.0 L-6-840	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	6	947-1894	250-500	78-154	4.8	700	6240	4600	6.78	988	8814	6500	100	22000	170	37400	142	190
7LZ172x7.0 L-5-914	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	7:8	5	1183-2366	312-625	84-168	4	585	7176	5293	5.65	824	10137	7476	100	22000	170	37400	150	200
7LZ172x7.0 L-5-5-914	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	7:8	5.5	1183-2366	312-625	84-168	4.4	640	7895	5823	6.22	902	11160	8230	100	22000	170	37400	176	236
7LZ172x7.0 L-5-7-1080	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	7:8	5.7	1183-2366	312-625	76-152	4.56	660	9030	6660	6.44	934	12750	9400	100	22000	170	37400	170	230
K9LZ172x7.0 L-2	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	2	1110-2220	293-586	43-86	1.6	232	5284	3897	2.26	328	7464	5505	100	22000	170	37400	61	82
JC9LZ172x7.0 L-3-1690	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	3	1110-2220	293-586	48-96	2.4	350	7926	5846	3.39	495	11196	8857	100	22000	170	37400	100	135
C9LZ172x7.0 L-3-5-1426	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	3.5	1110-2220	293-586	51-101	2.8	408	7808	5758	3.995	577	10978	8096	100	22000	170	37400	100	135
9LZ172x7.0 L-2-850	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	2	1206-2411	319-637	78-156	1.6	233	3148	2320	2.26	330	4446	3279	100	22000	170	37400	61	82
9LZ172x7.0 L-4-850	172	6 3/4	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	4	1110-2220	293-586	84-169	3.2	466	5355	3949	4.52	655	7112	5245	100	22000	170	37400	78	105
LZ178x7.0 L-4-840	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	1:2	4	450-899	119-237	191-382	3.2	466	1018	751	4.52	655	1352	997	80	17600	160	35200	46	62
2LZ178x7.0 L-8-780	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	2:3	8	590-1180	156-312	120-240	6.4	933	4011	2958	9.04	1318	5566	4179	100	22000	170	37400	126	168
2LZ178x7.0 L-7-780	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	2:3	7	590-1180	156-312	120-240	5.6	817	3510	2588	7.91	1154	4958	3656	100	22000	170	37400	110	147
3LZ178x7.0 L-6-840	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	3:4	6	770-1539	204-407	130-220	4.8	700	4660	4854	6.78	988	6580	4854	100	22000	170	37400	126	206
4LZ178x7.0 L-7-770	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	4:5	7	833-1665	220-440	102-205	5.6	817	6158	4541	7.91	1154	8698	6415	100	22000	170	37400	154	206
5LZ178x7.0 L-4-840	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	4	947-1894	250-500	78-154	3.2	466	4160	3068	4.52	655	5525	4075	100	22000	170	37400	126	1

7 Technological Parameters

Model	Tool OD		Bit Size		Connecting Thread		Lobe	Stage	Flow Rate		Rotary Speed	Working Pressure Loss	Output Torque		Max Pressure Loss		Max Torque		Working Pressure	Max Pressure		Output Power			
	mm	in	mm	in	up	down			lpm	gpm			N.m	lb-ft	Mpa	psi	N.m	lb-ft		KN	lb		KN	lb	KW
5LZ178x7.0 L-5-840	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	5	947-1894	250-500	78-154	4	585	5200	3835	5.65	824	7345	5417	100	22000	170	37400	118	159
5LZ178x7.0 L-6-840	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	5:6	6	947-1894	250-500	78-154	4.8	700	6240	4600	6.78	988	8814	6500	100	22000	170	37400	142	190
7LZ178x7.0 L-5-914	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	7:8	5	1183-2366	312-625	84-168	4	585	7176	5293	5.65	824	10137	7476	100	22000	170	37400	150	200
JC9LZ178x7.0 L-3-1690	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	3	1110-2220	293-586	48-96	2.4	350	7926	5846	3.39	495	11196	8857	100	22000	170	37400	100	135
C9LZ178x7.0 L-3.5-1426	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	3.5	1110-2220	293-586	51-101	2.8	408	7808	5758	3.995	577	10978	8096	100	22000	170	37400	100	135
9LZ178x7.0 L-2-850	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	2	1206-2411	319-637	78-156	1.6	233	3148	2320	2.26	330	4446	3279	100	22000	170	37400	61	82
9LZ178x7.0 L-4-850	178	7	213-251	8 3/8-9 7/8	4 1/2REG	4 1/2REG	9:10	4	1110-2220	293-586	84-169	3.2	466	5355	3949	4.52	655	7112	5245	100	22000	170	37400	78	105
5LZ185x7.0 L-5-850	185	7 1/4	222-251	8 3/4-9 7/8	4 1/2REG	6 5/8REG	5:6	5	985-1970	260-520	91-182	4	585	5548	4090	5.65	824	7836	5779	100	22000	170	37400	134	180
LZ197x7.0 L-4-840	197	7 3/4	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	1:2	4	465-930	123-246	139-277	3.2	466	1366	1007	4.52	655	1814	1338	100	22000	170	37400	47	62
4LZ197x7.0 L-6-840	197	7 3/4	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	4:5	6	1020-2040	269-538	85-170	4.8	700	7340	5415	6.78	988	10367	7646	150	33000	200	44000	166	222
5LZ197x7.0 L-4-840	197	7 3/4	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	5:6	4	1113-2225	295-588	79-158	3.2	466	5022	3704	4.52	655	6700	4920	150	33000	200	44000	99	133
197 7 3/4	197	7 3/4	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	5:6	5	1113-2225	295-588	79-158	4.8	585	6277	4629	5.65	824	8866	6540	150	33000	200	44000	130	176
5LZ197x7.0 L-6-840	197	7 3/4	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	5:6	6	1113-2225	295-588	79-158	4.8	700	7533	5555	6.78	988	10640	7847	150	33000	200	44000	157	210
9LZ197x7.0 L-4-840	197	7 3/4	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	9:10	4	1267-2534	335-670	72-145	3.2	466	6260	4617	4.52	655	8315	6132	150	33000	200	44000	113	152
7LZ197x7.0 L-5-840	197	7 3/4	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	7:8	5	1230-2460	322-645	75-150	4	585	7220	5324	5.65	824	10197	7520	150	33000	200	44000	130	176
C9LZ197x7.0 L-4-1050	197	7 3/4	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	9:10	4	1510-3028	400-800	67-135	3.2	466	9022	6655	4.52	655	12743	9398	150	33000	200	44000	162	217
LZ203x7.0 L-4-840	203	8	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	1:2	4	465-930	123-246	139-277	3.2	466	1366	1007	4.52	655	1814	1338	100	22000	170	37400	47	62
C4LZ203x7.0 L-5-1015	203	8	251-311	9 7/8-12 1/4	6 5/8REG	6 5/8REG	4:5	5	1320-3410	350-900	90-235	4	585	7850	5790	5.65	824	11090	8180	150	33000	250	55000	218	292
4LZ203x7.0 L-6-840	203	8	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	4:5	6	1020-2040	269-538	85-170	4.8	700	7340	5415	6.78	988	10367	7646	150	33000	200	44000	166	222
5LZ203x7.0 L-4-840	203	8	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	5:6	4	1113-2225	295-588	79-158	3.2	466	5022	3704	4.52	655	6700	4920	150	33000	200	44000	99	133
5LZ203x7.0 L-5-840	203	8	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	5:6	5	1113-2225	295-588	79-158	4	585	6277	4629	5.65	824	8866	6540	150	33000	200	44000	130	176
5LZ203x7.0 L-5-900	203	8	251-311	9 7/8-12 1/4	6 5/8REG	6 5/8REG	5:6	5	1320-3410	350-900	86-230	4	585	8220	6065	5.65	824	11615	8566	150	33000	250	55000	223	300
5LZ203x7.0 L-6-900	203	8	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	5:6	6	1320-3410	350-900	86-230	4.8	700	9290	6850	6.78	988	13320	9820	150	33000	250	55000	130	176
7LZ203x7.0 L-5-840	203	8	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	7:8	5	1230-2460	295-650	75-150	4	585	7220	5324	5.65	824	10197	7520	150	33000	200	44000	143	194
9LZ203x7.0 L-4-840	203	8	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	9:10	4	1267-2534	335-670	72-145	3.2	466	6260	4617	4.52	655	8315	6132	150	33000	200	44000	113	152
C9LZ203x7.0 L-4-1050	203	8	251-311	9 7/8-12 1/4	5 1/2REG	6 5/8REG	9:10	4	1510-3028	400-800	67-135	3.2	466	9022	6655	4.52	655	12743	9398	150	33000	200	44000	162	217
5LZ210x7.0 L-5-840	210	8 1/4	251-375	9 7/8-12 1/4	6 5/8REG	6 5/8REG	5:6	5	1228-2455	325-650	75-150	4	585	7481	5517	5.65	824	10567	7793	180	39600	300	66000	149	200
5LZ216x7.0 L-4-840	216	8 1/2	311-394	12 1/4-15 1/2	6 5/8REG	6 5/8REG	5:6	4	1228-2455	325-650	72-145	3.2	466	6105	4502	4.52	655	8108	5980	180	39600	300	66000	112	150
5LZ216x7.0 L-5-840	216	8 1/2	251-311	9 7/8-12 1/4	6 5/8REG	6 5/8REG	5:6	5	1228-2455	325-650	72-145	4	585	7631	5628	5.65	824	10607	7823	180	39600	300	66000	147	197
5LZ216x7.0 L-6-840	216	8 1/2	251-311	9 7/8-12 1/4	6 5/8REG	6 5/8REG	5:6	6	1228-2455	325-650	72-145	4.8	700	10267	7572	6.78	988	14502	10695	220	48400	330	79200	198	265
K9LZ216x7.0 L-2.5	216	8 1/2	251-311	9 7/8-12 1/4	6 5/8REG	6 5/8REG	9:10	2.5	1440-2880	380-760	45-90	2	290	7230	5333	2.83	410	10230	7545	180	39600	300	66000	77	103
5LZ228x7.0 L-5-840	228	9	251-311	9 7/8-12 1/4	6 5/8REG	6 5/8REG	5:6	5	1228-2455	325-650	72-145	4	585	7631	5628	5.65	824	10607	7823	180	39600	300	66000	147	197
5LZ228x7.0 L-6-840	228	9	251-311	9 7/8-12 1/4	6 5/8REG	6 5/8REG	5:6	6	1228-2455	325-650	72-145	4.8	700	10267	7572	6.78	988	14502	10695	220	48400	330	79200	198	265
LZ244x7.0 L-6-1026	244	9 5/8	311-445	12 1/4-17 1/2	6 5/8REG	6 5/8REG(7 5/8REG)	1:2	6	1345-2690	399-797	100-200	4.8	700	8983	6625	6.78	988	12690	9358	220	48400	330	79200	240	320
3LZ244x7.0 L-6-1026	244	9 5/8	311-445	12 1/4-17 1/2	6 5/8REG	6 5/8REG(7 5/8REG)	3:4	6	1345-2690	355-710	75-150	4.8	700	10465	7718	6.78	988	14782	10902	220	48400	330	79200	179	240
5LZ244x7.0 L-4-1008	244	9 5/8	311-445	12 1/4-17 1/2	6 5/8REG	6 5/8REG(7 5/8REG)	5:6	4	1650-3300	450-880	64-129	3.2	466	9114	6722	4.52	655	12105	8927	220	48400	330	79200	147	197
5LZ244x7.0 L-5-1008	244	9 5/8	311-445	12 1/4-17 1/2	6 5/8REG	6 5/8REG(7 5/8REG)	5:6	5	1650-3300	450-880	64-129	4	585	11393	8402	5.65	824	16092	11868	220	48400	330	79200	195	262
5LZ244x7.0 L-6-1008	244	9 5/8	311-445	12 1/4-17 1/2	6 5/8REG	6 5/8REG(7 5/8REG)	5:6	6	1650-3300	450-880	64-129	4.8	700	13670	10082	6.78	988	19310	14240	220	48400	330	79200	234	315
C5LZ244x7.0 L-4-1260	244	9 5/8	311-445	12 1/4-17 1/2	6 5/8REG	6 5/8REG(7 5/8REG)	5:6	4	2100-4200	600-1110	65-131	3.2	466	13020	9602	4.52	655	17290	12753	220	48400	330	79200	215	288
7LZ244x7.0 L-4-1008	244	9 5/8	311-445	12 1/4-17 1/2	6 5/8REG	6 5/8REG(7 5/8REG)	7:8	4	1775-3550	469-938	61-122	3.2	466	10300	7598	4.52	655	14550	10733	220	48400	330	79200	167	224
C7LZ244x7.0 L-4-1264	244	9 5/8	311-445	12 1/4-17 1/2	6 5/8REG	6 5/8REG(7 5/8REG)	7:8	4	2225-4450	588-1176	61-122	3.2	466	14765	10890	4.52	655	20856	15381	220	48400	330	79200	240	321
7LZ244x7.0 L-5-1096	244	9 5/8	311-445	12 1/4-17 1/2	6 5/8REG	6 5/8REG(7 5/8REG)	7:8	5	2270-4540	600-1200	68-135	4.0	585	15950	11760	5.65	824	24030	17720	220	48400	330	79200	310	415
7LZ244x7.0 L-5.7-1008	244	9 5/8	311-445	12 1/4-17 1/2	6 5/8REG	6 5/8REG(7 5/8REG)	7:8	5.7	2270-4160	600-1100	72-132	4.56	660	20600	15190	6.44	934	29090	21460	220	48400	330	79200	330	442
3LZ286x7.0 L-4-1280	286	11 1/4	375-660	14 3/4-26	(6 5/8REG)7 5/8REG	(6 5/8REG)7 5/8REG	3:4	4	2850-5700	1000-1500	97-196	3.2	466	11840	8731	4.52	655	15724	11597	300	67500	550	123750	290	388