LAFERTSERVO

LAFERTDRIVES

BATTERY-POWERED SOLUTIONS

LOW VOLTAGE BRUSHLESS SERVO MOTORS
BATTERY-POWERED DRIVES

BROCHURE 2016

THE RANGE

Lafert offers a wide range of **Permanent Magnet Synchronous Servo Motors**. The Lafert range of servo motors grants precise engineering and superior performance. Thanks to its whole integrated manufacturing process, Lafert can supply standard and tailor-made products for Industrial Automation giving excellent flexibility and cost efficiency.

SOLUTIONS FOR BATTERY-POWERED APPLICATIONS

In the sector of **battery-powered automated handling of material and/or people** within industrial plants, Lafert can offer a wide range of products suitable for many of the different application requirements.

The assembly, made up of an **AC brushless servomotor with its own servo drive**, is the perfect solution for both performance and costs. Due to the motor's high efficiency, the control system is noiseless and has a dramatic reduction in emissions compared with traditional traction systems. The solutions proposed by Lafert optimally meet, more and more, the majority of the market needs. The expertise and long experience in this sector allow Lafert to offer a high degree of flexibility and many customised solutions for this range of products, specifically designed for the battery-powered application field.

Lafert is present in the **AGV (Automated Guided Vehicle) sector** with solutions for applications ranging from lift trucks to automated equipment for industrial cleaning, up to hydraulic pumps.

Type	Square flange [mm]	Torque [Nm]	Rated speed [rpm]	Centring Diameter Ø	Diameter Coupling holes [mm]
B63I	225	4 to 10	2000 - 3000 - 4000 - 6000	Ø110j6	130
B71I	142	12 to 24	2000 – 2700	Ø130j6	165

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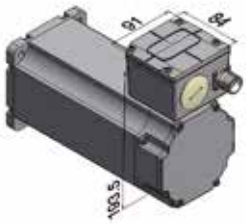
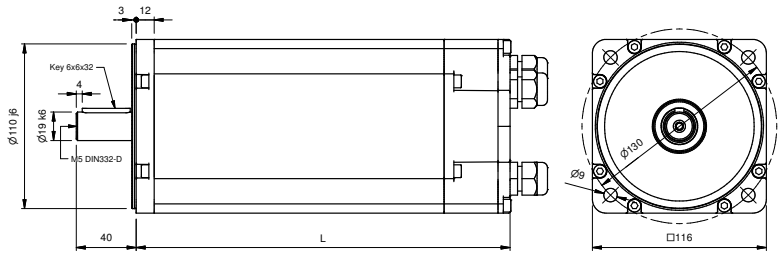
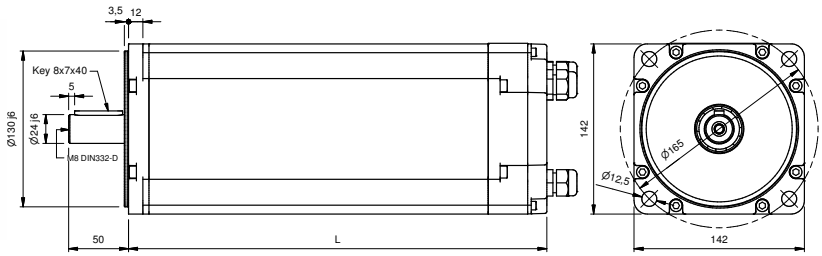
TYPE B63I - B71I - 6 POLES



CONNECTION C5

CONNECTION C3





Connection type C5 available for all motor range. Connection type C3 available only for I_0 < 66 Arms upon request.

MECHANICAL DATA

Type	Torque Nm	Length with RESOLVER/ENCODER (L) Without brake	With brake	Weight Kg Without brake	With brake
B63.04I	4	225	254	7.4	8.7
B63.06I	6	250	279	8.5	9.8
B63.08I	8	275	304	9.2	10.7
B63.10I	10	300	329	10.1	11.6
B71.12I	12	274	314	16.3	18.8
B71.16I	16	299	339	20.5	23.0
B71.20I	20	324	364	23.6	26.1
B71.24I	24	349	389	26.0	28.5

BRAKE DATA

Brake data	Symbol	B63I	B71I	Unit
Holding torque 20°C	Mbr	9.5	27	Nm
Voltage	Ubr	24	24	Vdc+/- 10%
Resistance	Rbr	30.0	23.4	Ohm
Electrical Power	Pbr	19.2	24.6	W
Current	Ibr	0.8	1.03	Adc
Additional* Rotor Inertia	Jbr	3.6	9.50	kgcm²
Opening (release) time	to max	80	110	ms
Closing (fall in) time	tc max	35	50	ms
Additional* Motor weight	mbr	1.0	2.5	kg

* Additional values are related to the motor data when the brake is mounted to the motor of the respective size, these values differ from the brake data in unmounted condition!

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TYPE B63I - 6 POLES

FOR MAINS VOLTAGE
48 - 96 V

Type	Stall torque (Δt=105°C)	Rated speed	Output rated speed	Rated torque (Δt=105°C)	Peak torque	Maximum speed	Moment of inertia	Peak torque acceleration	Thermal time constant	Thermal protection threshold	Voltage constant	Torque constant	Resistance phase to phase (20°C)	Inductance phase to phase	B.E.M.F. at rated speed	Stall current	Rated current
	M_o Nm	n 1/min	P_n kW	M_n Nm	M_{pk} Nm	n_{max} rpm	J 10^{-4} Kgm^2	a_{pk} rad/sec^2	T_{th} min	ϑ_{max} °C	k_e Vs	k_t Nm/A	R_w Ω	L_w mH	E_n Vrms	I_o Arms	I_n Arms
2000 min^{-1} - 48 Volt																	
B63.04I	4	2000	0.8	3.7	17.1	7200	6.10	29432	20	140	0.12	0.21	0.172	0.69	25	19.8	17.8
B63.06I	6	2000	1.2	5.5	24.4	7200	8.98	28538	30	140	0.12	0.21	0.088	0.48	25	29.1	26.5
B63.08I	8	2000	1.6	7.6	33.1	7200	11.76	29554	30	140	0.12	0.21	0.061	0.37	25	38.1	36.6
B63.10I	10	2000	2.0	9.4	40.5	7200	14.33	29670	35	140	0.12	0.21	0.041	0.28	25	49.5	45.2
3000 min^{-1} - 48 Volt																	
B63.04I	4	3000	1.1	3.5	17.1	7200	6.10	29432	20	140	0.08	0.14	0.074	0.32	25	27.5	29.1
B63.06I	6	3000	1.7	5.3	24.4	7200	8.98	28538	30	140	0.08	0.14	0.045	0.24	25	41.4	38.2
B63.08I	8	3000	2.2	7.1	33.1	7200	11.76	29554	30	140	0.08	0.14	0.029	0.18	25	55.0	51.2
B63.10I	10	3000	2.8	8.8	40.5	7200	14.33	29670	35	140	0.08	0.14	0.015	0.10	25	82.5	63.5
4000 min^{-1} - 48 Volt																	
B63.04I	4	4000	1.4	3.4	17.1	7200	6.10	29432	20	140	0.06	0.10	0.038	0.16	25	41.2	32.7
B63.06I	6	4000	2.1	5.1	24.4	7200	8.98	28538	30	140	0.06	0.10	0.020	0.11	25	61.9	49.1
B63.08I	8	4000	2.8	6.6	33.1	7200	11.76	29554	30	140	0.06	0.10	0.013	0.08	25	82.5	63.5
B63.10I	10	4000	3.4	8.1	40.5	7200	14.33	29670	35	140	0.06	0.10	0.010	0.07	25	99.0	77.9
6000 min^{-1} - 48 Volt																	
B63.04I	4	6000	1.9	3.0	17.1	7200	6.10	29432	20	140	0.04	0.07	0.021	0.09	25	55.0	43.3
B63.06I	6	6000	2.9	4.6	24.4	7200	8.98	28538	30	140	0.04	0.07	0.011	0.06	25	82.5	66.4
B63.08I	8	6000	3.5	5.6	24.4	7200	11.76	28538	30	140	0.04	0.07	0.006	0.04	25	82.5	80.8
2000 min^{-1} - 96 Volt																	
B63.04I	4	2000	0.8	3.7	17.1	7200	6.10	29432	20	140	0.24	0.42	0.663	2.87	50	9.7	8.9
B63.06I	6	2000	1.2	5.5	24.4	7200	8.98	28538	30	140	0.24	0.42	0.331	1.80	50	15.0	13.2
B63.08I	8	2000	1.6	7.6	33.1	7200	11.76	29554	30	140	0.24	0.42	0.271	1.61	50	18.3	18.3
B63.10I	10	2000	2.0	9.4	40.5	7200	14.33	29670	35	140	0.24	0.42	0.174	1.22	50	23.6	22.6
3000 min^{-1} - 96 Volt																	
B63.04I	4	3000	1.1	3.5	17.1	7200	6.10	29432	20	140	0.16	0.28	0.663	2.87	50	13.8	12.6
B63.06I	6	3000	1.7	5.3	24.4	7200	8.98	28538	30	140	0.16	0.28	0.166	0.88	50	20.6	19.1
B63.08I	8	3000	2.2	7.1	33.1	7200	11.76	29554	30	140	0.16	0.28	0.102	0.64	50	27.5	25.6
B63.10I	10	3000	2.8	8.8	40.5	7200	14.33	29670	35	140	0.16	0.81	0.540	0.62	50	33.0	10.9
4000 min^{-1} - 96 Volt																	
B63.04I	4	4000	1.4	3.4	17.1	7200	6.10	29432	20	140	0.12	0.21	0.175	0.75	50	20.6	16.4
B63.06I	6	4000	2.1	5.1	24.4	7200	8.98	28538	30	140	0.12	0.21	0.088	0.48	50	33.0	24.5
B63.08I	8	4000	2.8	6.6	33.1	7200	11.76	29554	30	140	0.12	0.21	0.061	0.37	50	41.2	31.8
B63.10I	10	4000	3.4	8.1	40.5	7200	14.33	29670	35	140	0.12	0.21	0.041	0.28	50	55.0	39.0
6000 min^{-1} - 96 Volt																	
B63.04I	4	6000	1.9	3.0	17.1	7200	6.10	29432	20	140	0.08	0.14	0.074	0.32	50	27.5	21.7
B63.06I	6	6000	2.9	4.6	24.4	7200	8.98	28538	30	140	0.08	0.14	0.037	0.20	50	41.2	33.2
B63.08I	8	6000	3.5	5.6	33.1	7200	11.76	29554	30	140	0.08	0.14	0.029	0.18	50	55.0	40.4
B63.10I	10	6000	4.3	6.8	40.5	7200	14.33	29670	35	140	0.08	0.14	0.019	0.14	50	70.7	49.1

TYPE B71I - 6 POLES

FOR MAINS VOLTAGE
48 - 96 V

Type	Stall torque (Δt=105°C)	Rated speed	Output rated speed	Rated torque (Δt=105°C)	Peak torque	Maximum speed	Moment of inertia	Peak torque acceleration	Thermal time constant	Thermal protection threshold	Voltage constant	Torque constant	Resistance phase to phase (20°C)	Inductance phase to phase	B.E.M.F. at rated speed	Stall current	Rated current
	M_o Nm	n 1/min	P_n kW	M_n Nm	M_{pk} Nm	n_{max} rpm	J 10^{-4} Kgm^2	a_{pk} rad/sec^2	T_{th} min	ϑ_{max} °C	k_e Vs	k_t Nm/A	R_w Ω	L_w mH	E_n Vrms	I_o Arms	I_n Arms
2000 min^{-1} - 48 Volt																	
B71.12I	12	2000	2.3	11.0	48	7200	23.60	20339	45	140	0.12	0.21	0.027	0.13	25	58.4	52.9
B71.16I	16	2000	2.8	13.5	60	7200	31.53	19029	45	140	0.12	0.21	0.019	0.11	25	75.1	65.0
B71.20I	20	2000	3.4	16.0	80	7200	38.44	20812	50	140	0.12	0.21	0.011	0.07	25	105.1	77.0
B71.24I	24	2000	3.8	18.0	92	7200	45.35	20287	55	140	0.12	0.21	0.007	0.05	25	105.1	86.6
2700 min^{-1} - 48 Volt																	
B71.12I	12	2700	3.0	10.5	48	7200	23.60	20339	45	140	0.09	0.16	0.017	0.08	28	75.1	67.4
B71.16I	16	2700	3.4	12.0	60	7200	31.53	19029	45	140	0.09	0.16	0.010	0.05	28	105.1	77.0
B71.20I	19	2700	3.8	13.5	80	7200	38.44	20812	50	140	0.09	0.16	0.007	0.04	28	124.9	86.6
2000 min^{-1} - 96 Volt																	
B71.12I	12	2000	2.3	11.0	48	7200	23.6	20339	45	140	0.24	0.42	0.107	0.53	50	29.2	26.5
B71.16I	16	2000	2.8	13.5	60	7200	31.5	19029	45	140	0.24	0.42	0.073	0.43	50	37.6	32.5
B71.20I	20	2000	3.4	16.0	80	7200	38.4	20812	50	140	0.24	0.42	0.050	0.33	50	47.8	38.5
B71.24I	24	2000	3.8	18.0	92	7200	45.4	20287	55	140	0.24	0.42	0.037	0.26	50	58.4	43.3
3000 min^{-1} - 96 Volt																	
B71.12I	12	3000	3.3	10.5	48	7200	23.6	20339	45	140	0.16	0.28	0.047	0.24	50	43.8	37.9
B71.16I	16	3000	3.8	12.0	60	7200	31.5	19029	45	140	0.16	0.28	0.030	0.18	50	58.8	43.3
B71.20I	20	3000	4.2	13.5	80	7200	38.4	20812	50	140	0.16	0.28	0.021	0.13	50	75.1	48.7
B71.24I	24	3000	4.7	15.0	92	7200	45.4	20287	55	140	0.16	0.28	0.017	0.12	50	87.6	54.1

Connection type C5 available for all motor range. Connection type C3 available only for I_0 < 66 Arms upon request.

LAFERTDRIVES

HMC SERIES FOR CONTROLLING HYDRAULIC SYSTEMS

Battery-powered drive (48Vdc) for the control of brushless servomotors coupled to hydraulic pumps on forklifts, automatic forklifts and on any battery-powered equipment that needs a hydraulic, pneumatic or conditioning system.
It's an excellent solution in order to limit expenditures without living up performance.

Driving differences among the several motor technologies		
Asynchronous Motors	**DC Motors with brushes**	**Brushless Servo Motors**
Controlled by inverters	Controlled by on/off contractor	Controlled by HMC
Reduced torque with low speed	Spike, interferences in the field of radiofrequencies	Constant torque 0⍰Max with the possibility to carefully adjust the hydraulic circuit
Continuous use of the battery	Continuous use of the battery	No battery consumption when the motor is not working
Start and stop ramp	Sudden change in pressure inside oil conduits	Start and stop ramp carefully controllable
-	Sharp reduction in the battery level on starting with consequent battery deterioration over time	Permanent magnets that ensure higher efficiency while increasing system efficiency
Control through proportional valves that provide the adjustment of the hydraulic circuit	Control through proportional valves that provide the adjustment of the hydraulic circuit	No more proportional valves thanks to the pressure/position feedback control

Current Size		**A**	**B**	**C**	**D**
Rated Current	Arms	40	75	110	220
Peak Current	Arms	80	150	220	350
Torque (3000 rpm)	Nm	8	16	24	48
Main Power Supply	Vdc	48			
Cooling		Self cooled Internal forced ventilation if requested			
Degree of Protection		IP20			
Operating Temperature	°C	0 ÷ 45°C - up to 60°C decreasing 2% each °C over 45°C			
Storage Temperature	°C	From -25 to +80			
Relative Humidity	%	≤ 90% without drops			
Weight	Kg	3.2	3.2	3.7	4.2
Dimensions: W x H x D	mm	70 x 242 x 234	70 x 242 x 234	103 x 242 x 234	143 x 242 x 234

TWIN SERIES FOR ELECTRIC TRACTION

Dual channel drive in book format designed for battery-power supply (24Vdc, 48Vdc, 96Vdc). Simultaneous control of two motors in speed, torque and position with a single drive. Mathematical synchronisation between the two motors.
Sinusoidal control with integrated power supply and braking resistor group; peak output current up to 350 Arms for channel.
Possibility to connect drive outputs in parallel in order to control high power motors.
Ideal solution for "traction/steering" applications (such as, drive wheels), where two motors have to be controlled in position and when the adjustment of position synchronism between the two motors is directly required inside the drive, in order to carry out extremely accurate paths.
In addition, the Twin series allows controlling two "traction" motors with position synchronism, with electronic differential solutions that allow smooth and comfortable handling even in presence of paths with curves.

		24/48 Vdc				96 Vdc			
Current Size		**A**	**B**	**C**	**D**	**A**	**B**	**C**	**D**
Rated Current	Arms	40	75	150	220	30	55	80	115
Peak Current	Arms	80	150	300	350	60	110	160	190
Main Power Supply	Vdc	24/48				96			
Cooling		Internal forced ventilation							
External Brake Resistor	Ω	1 ÷ 5							
Degree of Protection		IP20							
Operating Temperature	°C	0 ÷ 45°C - up to 60°C decreasing 2% each °C over 45°C							
Storage Temperature	°C	From -25 to +80							
Relative Humidity	%	≤ 90% without drops							
Weight	Kg	6							
Dimensions: W x H x D	mm	285x102*x234 *70 Size A							

* Main power supply 24 Vac available on request.

LAFERTGROUP

MKTG-10-128/16

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