



XA and Z Ranges

PM synchronous gearless motors for elevators

Technical catalogue

XA & Z ranges

PM synchronous gearless motors for elevators

Introduction

For the best part of a century, Leroy-Somer has been present wherever people have needed to produce energy, or transmit and control movement. With more than 40 years' expertise in the design and industrialization of drives for lifts, Leroy-Somer offers its customers the technical support necessary during the machine design phases and offers reliable, innovative and high-performance solutions.

An international group

With the strength of its 10,000 employees behind it, the company has set up an international network of 470 expertise and service centers capable of providing sales and technical support 24 hours a day, 7 days a week, throughout the world.

To develop its presence on booming markets, support the growth of its lift installation customers and guarantee them a high-performance service, Leroy-Somer is establishing industrial sites all over the world.

The team of experts dedicated to the lifts market can meet the demands of large international groups, as well as those of companies with more local dimensions.

New installations

The new Gearless motors in Leroy-Somer's XARange are high-performance solutions for machine room less applications. These motors can cope with requirements up to 2500 kg and 3 m/s with a 2:1 roping arrangement. The "cigar" type design of these ultra-compact lightweight machines makes them easy to install in the lift well. The high-efficiency motors with low temperature rise ensure minimal vibration and excellent ride performance. They also offer the option of choosing between 2 sheave diameters in order to optimize the size of the selected machine.

Modernization

Leroy-Somer has a complete range of Z Gearless drives suitable for modernization projects. These drives

can take shaft loads of up to 22 Tons, and can be used on applications up to 5000 kg and 5 m/s with a 2:1 roping arrangement. Leroy-Somer also offers technical support during the design phase, proposing solutions adapted to suit the existing installation, while complying with the requirements of the safety standards. Leroy-Somer thus offers a complete customized solution thanks to mechanical options such as deflection sheaves with chassis or secure electronic systems for emergency operations.

Global solution

An expert in specifying rotating machines, Leroy-Somer offers new gearless drives with its Z and XA ranges. In combination with UNIDRIVE SP drives and their software dedicated to lift applications, Leroy-Somer provides a technical sales package which takes account of all the customers' data and requirements: customized advice and guaranteed performance

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Leroy-Somer reserves the right to modify the characteristics of its products at any time in order to incorporate the latest technological developments. The information contained in this document may therefore be changed without prior notice.

XA ranges

PM synchronous gearless motors for elevators

General information

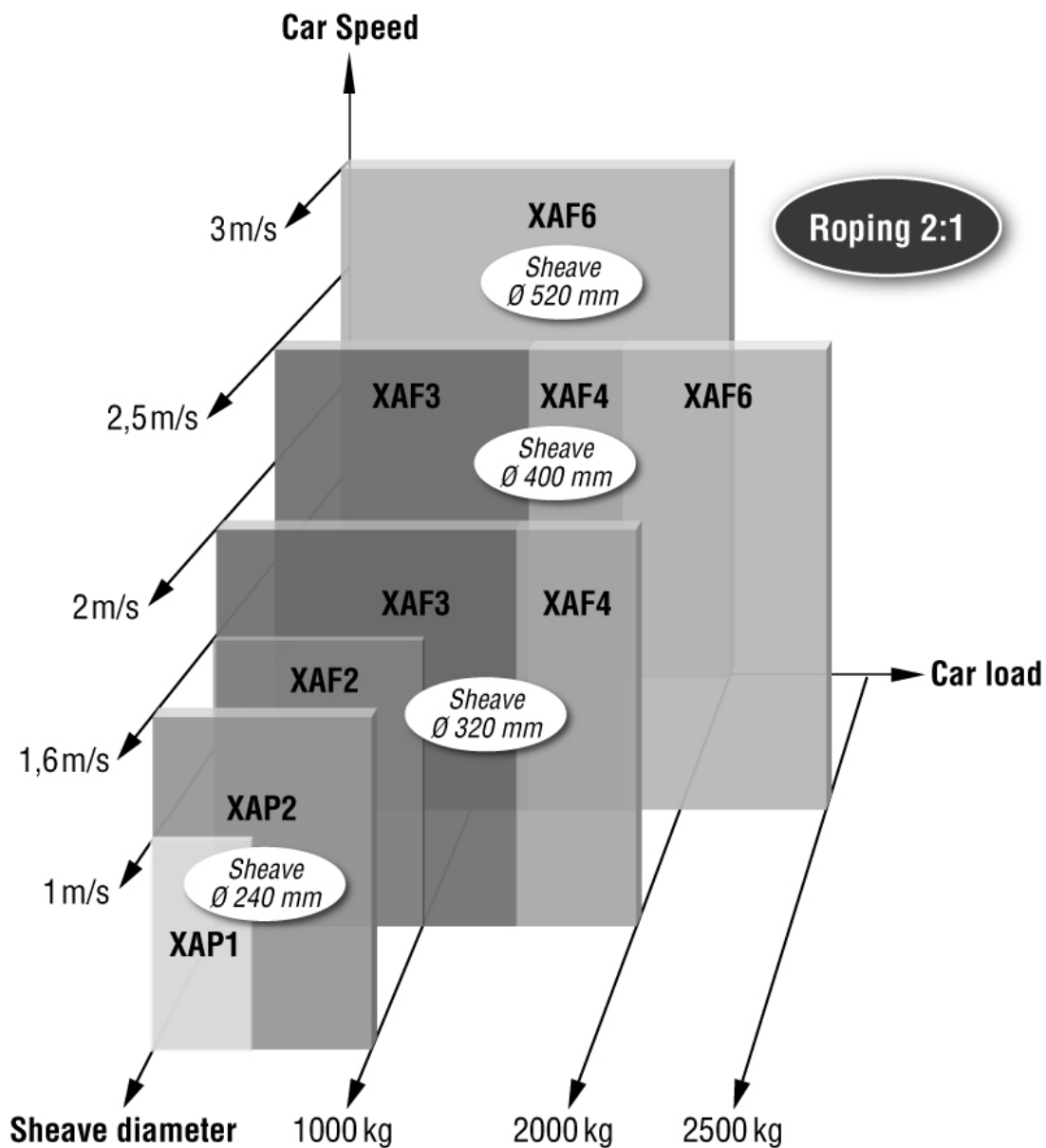


Motor features

- Gearless Permanent Magnet motors
- Smooth and silent operations
- Up to 6T static load
- Reduced Maintenance
- Hardened grooves
- Absolute encoder

Applications

- Machine Room Less
- Modernization
- New Installation



XAP1 - CE 320 - 200

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55 dB (A) at 1m
- Sheave standard hardness: 50 HRC
- Thermal protection: PTC thermistor (option)

In compliance with:
- EN81.1 European Standard

Technical characteristics

	XAP1-CE 320-200
Max. Cabin Load (kg)	350
Max. Shaft Load (kg)	900
Sheave characteristics	Ø200 4x VØ6,5
Number of poles	16
Max. Speed (min ⁻¹)	191
Nominal Torque (Nm)	110
Maximum Torque (Nm)	180
Number of brake coils	2
Braking Torque (Nm)	2x 225
Motor weight (kg)	80
Machine Inertia (kgm ²)	0,063

Selection

Roping 2:1

Travel: 20m - Counterweight Ratio: 50% - Voltage: 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Number of ropes Ø 6.5 mm	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)
XAP1-CE 320	320	1	4	98	4,6	6,9	2,0	500

Brakes

Fail safe axial brakes – TUV listed

	XAP1-CE 320-200
Torque	2 x 225 Nm
Holding Power	2 x 42 W
Nominal voltage	2 x 103 V DC
Over-excitation voltage	2 x 207 V DC

Encoder: ERN 426, 4096 points incremental
Option: ECN 413, absolute encoder

Operating cycle: S5 – 40% – 120 starts per hour.

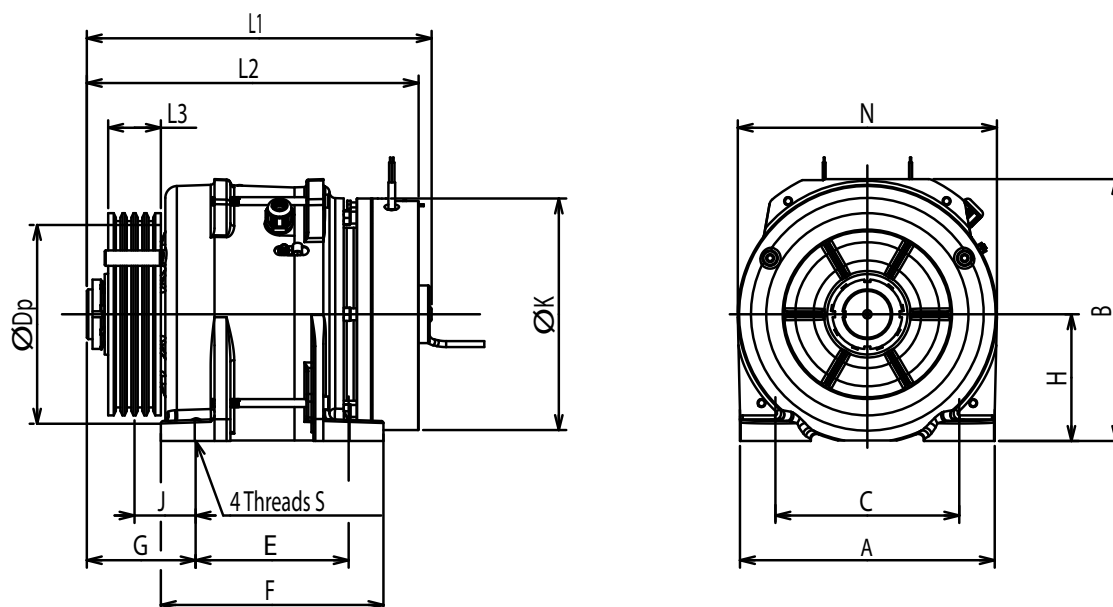
The current values are an indication but may vary due to specific operating parameters.
For more precise calculations, you will need to contact Leroy-Somer.

XAP1 - CE 320 - 200

PM synchronous gearless motors for elevators

Dimensions

XAP1-CE 320



Type	Main dimensions (mm)														
	A	B	C	E	F	G	H	J	K	L1	L2	L3	N	S	Dp
XAP1-CE 320	256	264	185	154	224	110	127.5	61,5	233	350	334	53	261	M12	200

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

XAP1 - CE 450 - 200

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55 dB (A) at 1m
- Sheave standard hardness: 50 HRC

In compliance with:
- EN81.1 European Standard

Technical characteristics

	XAP1-CE450-200
Max. Cabin Load (kg)	480
Max. Shaft Load (kg)	1400
Sheave characteristics	Ø200 7x VØ6,5
Number of poles	16
Max. Speed (min ⁻¹)	191
Nominal Torque (Nm)	180
Maximum Torque (Nm)	340
Number of brake coils	2
Braking Torque brake (Nm)	2x 225
Motor weight (kg)	98
Machine Inertia (kgm ²)	0,094

Selection

Roping 2:1

Travel: 30m - Counterweight Ratio: 50% - Voltage: 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Number of ropes Ø 6.5 mm	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)
XAP1-CE 450-200	450	1	7	162	8	12	3,2	750

Brakes

Fail safe axial brakes – TUV listed

	XAP1-CE 450-200
Torque	2 x 220 Nm
Holding Power	2 x 42 W
Nominal voltage	2 x 103 V DC
Over-excitation voltage	2 x 207 V DC

Encoder: ERN 426, 4096 points incremental
Option: ECN 413, absolute encoder

Operating cycle: S5 – 40% – 180 starts per hour.

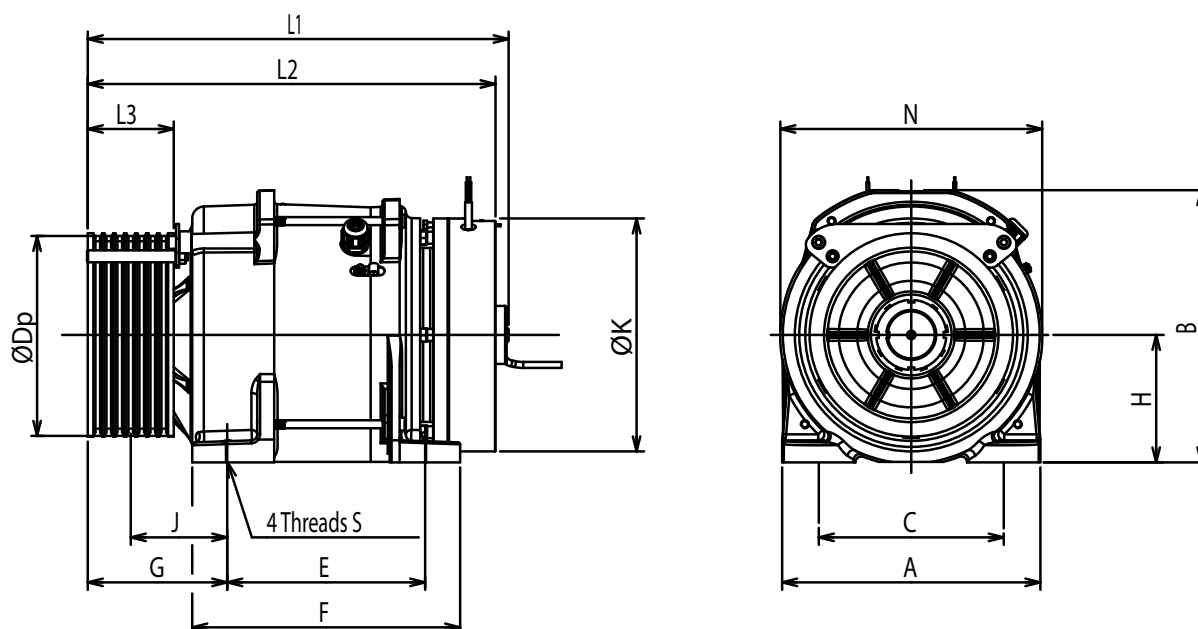
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XAP1 - CE 450 - 200

PM synchronous gearless motors for elevators

Dimensions

XAP1-CE 450-200



Type	Main dimensions (mm)														
	A	B	C	E	F	G	H	J	K	L1	L2	L3	N	S	Dp
XAP1-CE450-200	258	272	185	198	268	140	127,5	96.5	233	424	408	86	262	M12	200

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

XAP1 - CE 450 - 240

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55 dB (A) at 1m
- Sheave standard hardness: 50 HRC
- Manual Rescue Device (option, position left or right)

In compliance with:
- EN81.1 European Standard

Technical characteristics

XAP1-CE 450-240	
Max. Cabin Load (kg)	480
Max. Shaft Load (kg)	1400
Sheave characteristics	Ø 240 5x VØ6 or Ø 240 6x VØ6,5
Number of poles	16
Max. Speed (min ⁻¹)	160
Nominal Torque (Nm)	180
Maximum Torque (Nm)	340
Number of brake coils	2
Braking Torque brake (Nm)	2x 250
Motor weight (kg)	110
Machine Inertia (kgm ²)	0,125

Selection

Roping 2:1

Travel: 30m - Counterweight Ratio: 50% - Voltage: 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Number of ropes Ø 6.5 mm	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)
XAP1-CE 450-240	450	1	5	180	8	12	3,0	1000

Brakes

Fail safe axial brakes – TUV listed

XAP1-CE 450-240	
Torque	2 x 250 Nm
Holding Power	2 x 42 W
Nominal voltage	2 x 103 V DC

Encoder: ERN 426, 4096 points incremental

Option: ECN 413, absolute encoder

Operating cycle: S5 – 40% – 180 starts per hour.

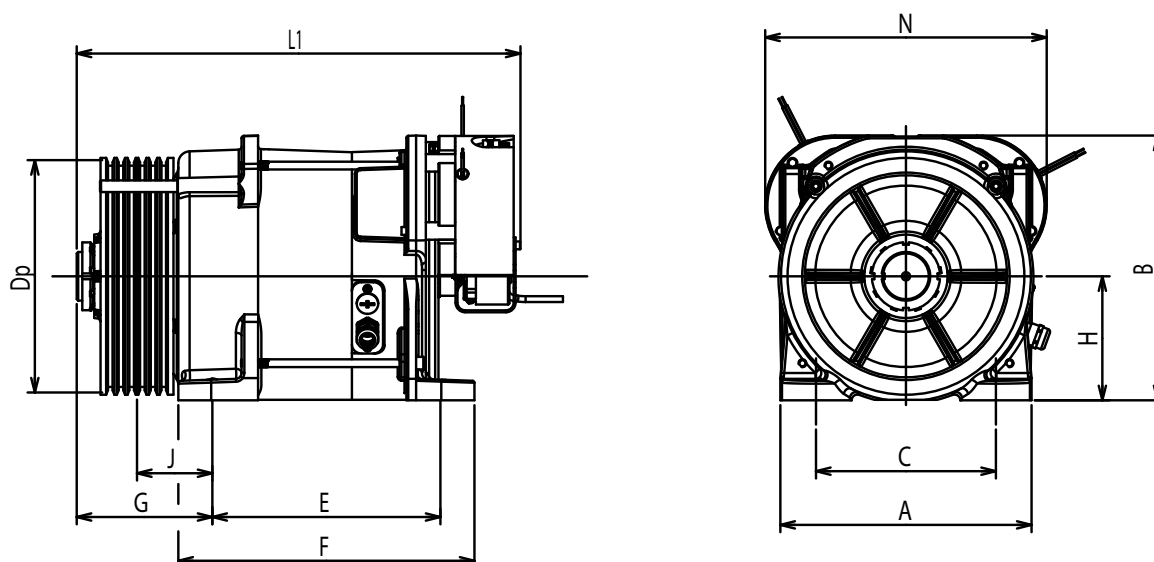
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XAP1 - CE 450 - 240

PM synchronous gearless motors for elevators

Dimensions

XAP1-CE 450-240



Type	Main dimensions (mm)														
	A	B	C	E	F	G	H	J	K	L1	L2	M	N	S	Dp
XAP1-CE 450-240	258	272	185	234,5	304,5	139,5	127,5	73	75	456	471	311	289	M12	240

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

XAP1 - CE 630 - 200

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55 dB (A) at 1m
- Sheave standard hardness: 50 HRC

In compliance with:
- EN81.1 European Standard

Technical characteristics

	XAP1-CE 630-200
Max. Cabin Load (kg)	630
Max. Shaft Load (kg)	1400
Sheave characteristics	Ø200 7x VØ6,5
Number of poles	16
Max. Speed (min ⁻¹)	191
Nominal Torque (Nm)	200
Maximum Torque (Nm)	360
Number of brake coils	2
Braking Torque brake (Nm)	2x 280
Motor weight (kg)	101
Machine Inertia (kgm ²)	1,038

Selection

Roping 2:1

Travel: 30m - Counterweight Ratio: 50% - Voltage: 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Number of ropes Ø 6.5 mm	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)
XAP1-CE 630	630	1	7	193	9,1	12,7	3,9	1000

Brakes

Fail safe axial brakes – TUV listed

	XAP1-CE 630
Torque	2 x 280 Nm
Holding Power	2 x 53 W
Nominal voltage	2 x 103 V DC

Encoder: ERN 426, 4096 points incremental

Option: ECN 413, absolute encoder

Operating cycle: S5 – 40% – 180 starts per hour.

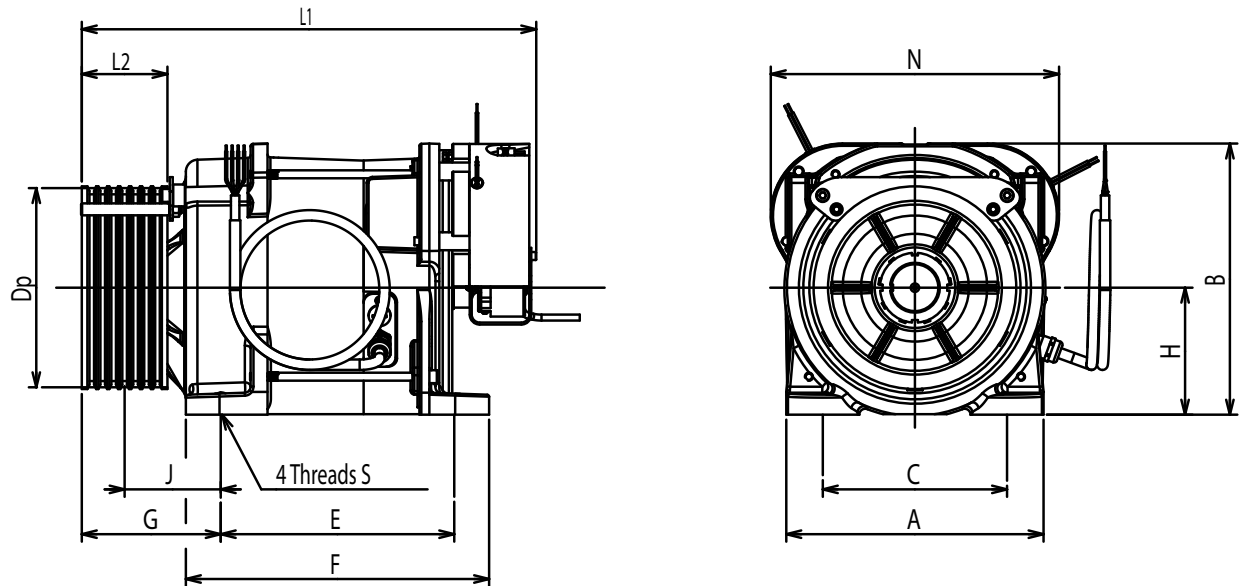
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XAP1 - CE 630 - 200

PM synchronous gearless motors for elevators

Dimensions

XAP1-CE 630



Type	Main dimensions (mm)												
	A	B	C	E	F	G	H	J	L1	L2	N	S	Dp
XAP1-CE 630	258	272	185	234.5	305	140	127,5	96.5	456	86	289	M12	200

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

XAP2

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55 dB (A) at 1m
- Sheave standard hardness: 50 HRC
- Thermal protection: PTC thermistor

In compliance with:

- 95/16/CE elevator guideline
- EN81.1 European Standard

Technical characteristics

	XAP2 M	XAP2 L
Sheave diameter (mm)	240	
Sheave usable width (mm)	86	108
Shaft Load (kg)	2200	
Number of poles	16	
Max. Speed (min ⁻¹)	255	
Nominal torque (Nm)	270	415
Maximum torque (Nm)	415	615
Max. Number of brakes	2	
Max. Braking torque per brake (Nm)	325	500
Motor weight (kg)	125	187
Machine Inertia (kg.m ²)	0.19	0.26

Selection

Roping 2:1

Travel : 30m - Counterweight ratio : 50% - Voltage : 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Number of ropes Ø6 mm or Ø6.5 mm		Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
XAP2 M	630	0.63	7	6	264	9	13	2.8	900	1406
		1				12	18	4.4		2401
		1.6				18	27	7.0		2403
XAP2 L	800	0.63	9	8	330	9	14	3.5	1200	1406
		1				13	19	5.5		2401
		1.6				20	29	8.8		2403
	1000	0.63	10	9	407	11	17	4.3	1300	2401
		1				17	25	6.8		2403
		1.6				26	38	10.9		2404

Roping 1:1

Travel : 30m - Counterweight ratio : 50% - Voltage : 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Number of ropes Ø6 mm or Ø6.5 mm		Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
XAP2 M	300	0.63	7	6	263	5	8	1.4	450	1404
		1				8	11	2.2		1406
		1.6				10	15	3.5		2401
	375	0.63	9	8	348	6	9	1.8	600	1405
		1				9	12	2.9		1406
		1.6				12	18	4.6		2401
XAP2 L	450	2	10	9	415	14	20	5.8	700	2402
		0.63				8	12	2.2		1406
		1				10	15	3.5		2401
		1.6				15	21	5.5		2402
		2				17	25	6.9		2403

Operating cycle: S5 - 40% - 180 starts per hour.

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XAP2

PM synchronous gearless motors for elevators

Brakes

Fail safe axial brakes – TUV listed

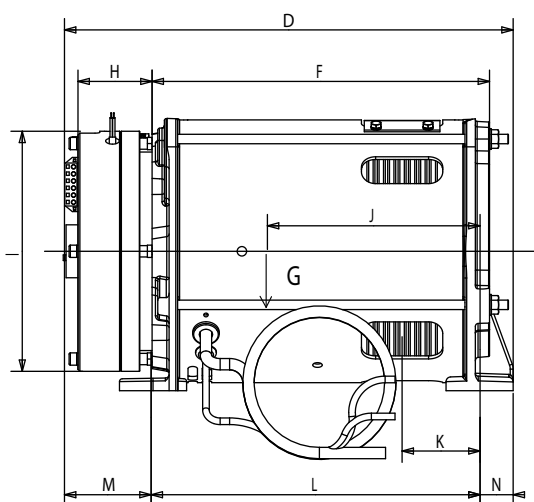
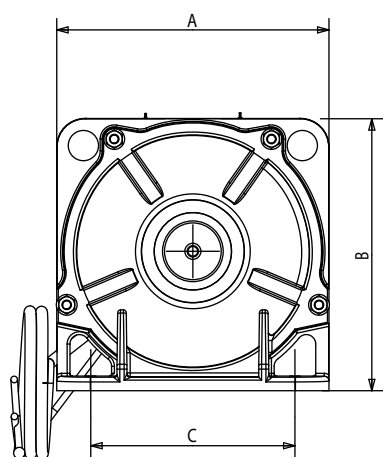
	XAP2 M		XAP2 L	
Pick up Voltage per coil	104VDC	207VDC	104VDC	207VDC
Holding Voltage per coil	52VDC	104VDC	52VDC	104VDC
Pick up Power per coil	270W		186W	
Holding Power per coil	52W		47W	

Encoder: ECN 413 Absolute encoder

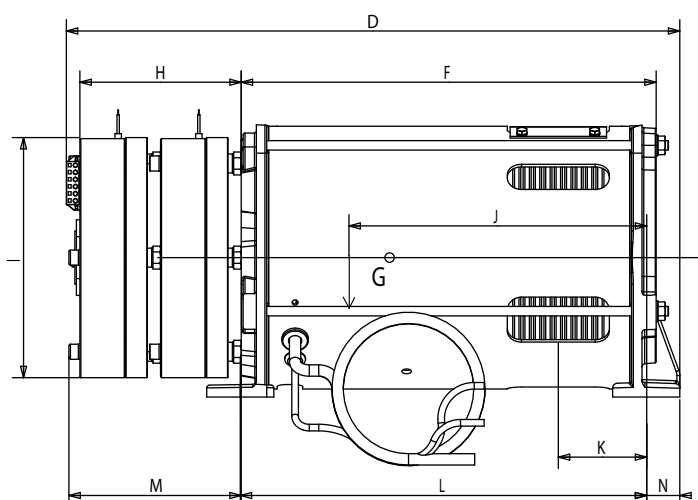
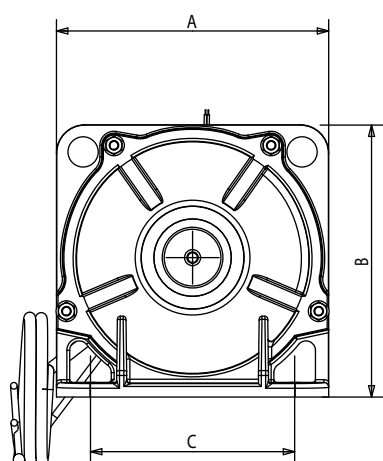
Option: 4096 points incremental encoder ERN 426

Dimensions

XAP2 M



XAP2 L



Type	Main dimensions (mm)											
	A	B	C	D	F	H	I	J	K	L	M	N
XAP2 M	288	288	216	483	357	78.4	254	225	82.5	348	101	35
XAP2 L				646	439	170.6	254	315	93.5	430	181	35

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

XAF2

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55 dB (A) at 1m
- Sheave standard hardness: 50 HRC
- Thermal protection: PTC thermistor

In compliance with:

- 95/16/CE elevator guideline
- EN81.1 European Standard

Technical characteristics

	XAF2 S			XAF2 M		XAF2 L
Sheave diameter (mm)	200	240	320	240	320	320
Sheave usable width (mm)	128	128	108	128	108	108
Shaft Load (kg)	2250					
Number of poles	16					
Max. Speed (min ⁻¹)	255					
Nominal torque (Nm)	270			415		570
Maximum torque (Nm)	415			615		885
Max. Number of brakes	2					
Max. Braking torque per brake (Nm)		300		500		600
Motor weight (kg)	140	142	145	198	202	230
Machine Inertia (kg.m ²)	0.229	0.278	0.463	0.327	0.507	0.531

Selection

Roping 2:1

Travel : 30m - Counterweight ratio : 50% - Voltage : 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
XAF2 S	450	1	320mm	4 x Ø8mm	259	9	13	3.2	600	1406
		1.6				13	19	5.2		2401
	630	1	240mm	7 x Ø6.5mm	264	12	17	4.4	800	2401
		1.6				18	26	7.0		2403
	800	1	200mm	8 x Ø6.5mm	220	10	15	4.4	1000	2401
		1.6				14	20	5.5		2402
XAF2 M	630	1	320mm	5 x Ø8mm	344	11	16	4.3	800	2401
		1.6				17	25	6.9		2403
	1000	1	240mm	9 x Ø6.5mm	407	17	25	6.8	1300	2403
		1.6				26	38	10.9		2404
	1000	1	320mm	7 x Ø8mm	558	19	29	7.0	1300	2403
		1.6				29	51	11.2		3401

Operating cycle: S5 – 40% – 180 starts per hour.

The current values are an indication but may vary due to specific operating parameters.
For more precise calculations, you will need to contact Leroy-Somer.

XAF2

PM synchronous gearless motors for elevators

Roping 1:1

Travel : 30m - Counterweight ratio : 50% - Voltage : 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
XAF2 S	230	1	320mm	3 x Ø8mm	256	6	9	1.6	400	1404
		1.6				8	12	2.6		1405
	320	1	240mm	7 x Ø6.5mm	277	8	12	2.3	500	1406
		1.6				11	16	3.7		2401
		1	200mm		231	7	10	2.3		1405
		1.6				9	13	3.7		1406
XAF2 M	320	1	320mm	4 x Ø8mm	372	8	11	2.3	500	1406
		1.6				11	15	3.7		2401
	480	1	240mm	9 x Ø6.5mm	438	12	17	3.7	600	2401
		1.6				17	24	5.8		2403
XAF2 L	480	1	320mm	6 x Ø8mm	585	12	17	3.7	600	2401
		1.6				17	24	5.9		2403

Brakes

Fail safe axial brakes – TUV listed

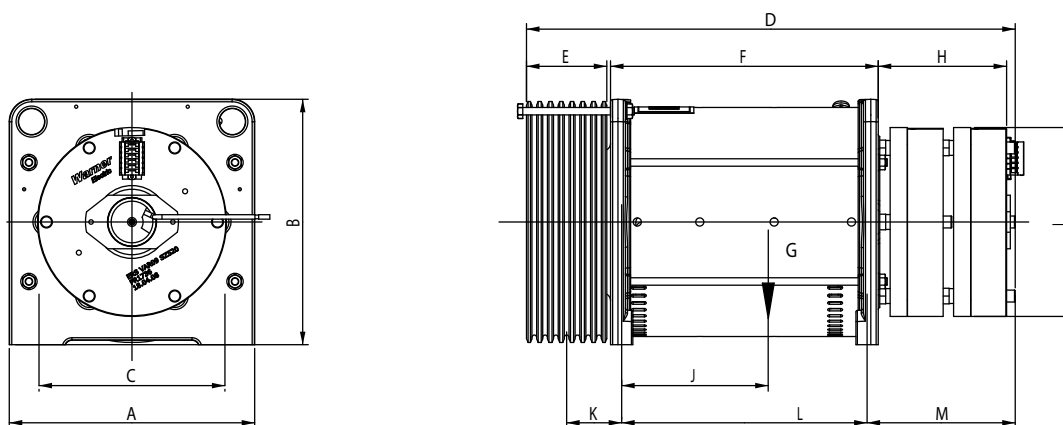
	XAF2S		XAF2 M & L	
Pick up Voltage per coil	104VDC	207VDC	104VDC	207VDC
Holding Voltage per coil	52VDC	104VDC	52VDC	104VDC
Pick up Power per coil	270W		186W	
Holding Power per coil	52W		47W	

Encoder: ECN 413 Absolute encoder

Option : 4096 points incremental encoder ERN 426

Dimensions

XAF2



Type	Main dimensions (mm)											
	End shield dimensions		C	D	E	F	H	I	J	K	L	M
	A	B										
XAF2 S 200 mm	288	288	250	536	128	282	78	254	124	104	250	118
XAF2 S 240 mm				531	108	342	171		99	75		
XAF2 S 320 mm				497	128	204	99		310			
XAF2 M 240 mm				684	108	193	75		211			
XAF2 M 320 mm				649	362	197	74		330			
XAF2 L 320 mm	330	330		669								

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

XAF3

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55 dB (A) at 1m
- Sheave standard hardness: 50 HRC
- Thermal protection: PTC thermistor

In compliance with:

- 95/16/CE elevator guideline
- EN81.1 European Standard

Technical characteristics

	XAF 3	
Sheave diameter (mm)	320	400
Sheave usable width (mm)	118	137
Shaft Load (kg)	3000	
Number of poles	16	
Max. Speed (min ⁻¹)	240	
Nominal torque (Nm)	750	
Maximum torque (Nm)	1500	
Max. Number of brakes	2	
Max. Braking torque per brake (Nm)	800	
Motor weight (kg)	352	371
Machine Inertia (kg.m ²)	1.02	1.68

Selection

Roping 2:1

Travel : 30m - Counterweight ratio : 50% - Voltage : 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
XAF3	800	1	400mm	5 x Ø10mm	571	12	18	5.7	1200	2401
		1.6				18	27	9.1		2403
		2				22	35	11.4		2403
		2.5				28	46	14.3		2404
	1000	1	400mm	6 x Ø10mm	711	16	24	7.1	1400	2402
		1.6				24	36	11.4		2403
		2				30	46	14.2		3401
		2.5				36	54	17.1		3402
	1150	1	400mm	7 x Ø10mm	821	20	31	8.0	1500	2403
		1.6				27	40	13.3		2404
	1250	1	320mm	8 x Ø8mm	667	18	26	8.3	1600	2403
		1.6				27	40	13.3		2404

Operating cycle: S5 – 40% – 180 starts per hour.

The current values are an indication but may vary due to specific operating parameters.
For more precise calculations, you will need to contact Leroy-Somer.

XAF3

PM synchronous gearless motors for elevators

Roping 1:1

Travel : 30m - Counterweight ratio : 50% - Voltage : 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
XAF3	500	1	400mm	4 x Ø10mm	652	8	12	3.3	700	1406
		1.6				12	18	5.2		2401
		2				14	22	6.9		2402
		2.5				18	30	8.2		2403
	630	1	320mm	7 x Ø8mm	651	10	14	4.1	800	2401
		1.6				14	21	6.5		2402
		2				17	27	8.1		2403
		2.5				21	34	10.8		2403
	800	1	400mm	5 x Ø10mm	826	12	17	4.1	900	2401
		1	320mm	8 x Ø8mm	820	14	19	5.1		2402

Brakes

Fail safe axial brakes – TUV listed

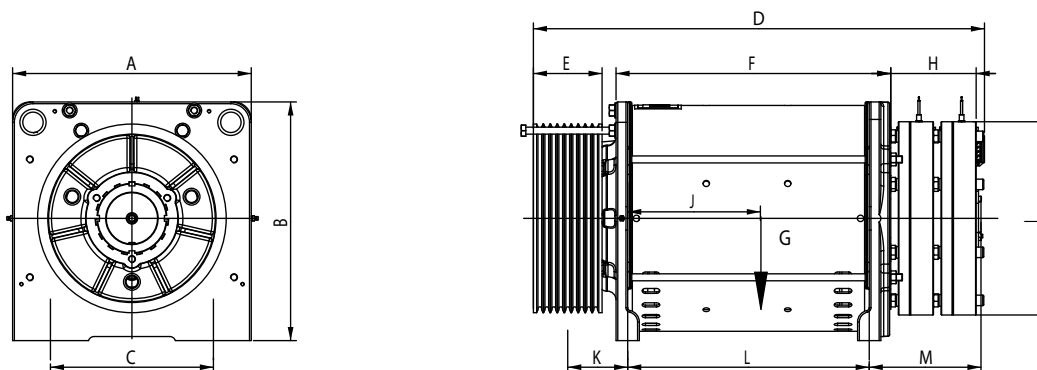
	XAF3	
Pick up Voltage per coil	104VDC	207VDC
Holding Voltage per coil	52VDC	104VDC
Pick up Power per coil	270W	
Holding Power per coil	52W	

Encoder: ECN 413 Absolute encoder

Option: 4096 points incremental encoder ERN 426

Dimensions

XAF3



Type	Main dimensions (mm)											
	End shield dimensions		C	D	E	F	H	I	J	K	L	M
	A	B										
XAF3 320 mm	410	410	280	703,5	118	377	184,6	269	189	94	320	230.5
XAF3 400 mm				713,5	137				174			

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

XAF4

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55 dB (A) at 1m
- Sheave standard hardness: 50 HRC
- Thermal protection: PTC thermistor

In compliance with:

- 95/16/CE elevator guideline
- EN81.1 European Standard

Technical characteristics

	XAF4	
Sheave diameter (mm)	320	400
Sheave usable width (mm)	191	191
Shaft Load (kg)	4900	
Number of poles	16	
Max. Speed (min ⁻¹)	240	
Nominal torque (Nm)	1135	
Maximum torque (Nm)	2000	
Max. Number of brakes	2	
Max. Braking torque per brake (Nm)	1200	
Motor weight (kg)	450	460
Machine Inertia (kg.m ²)	1.6	2.2

Selection

Roping 2:1

Travel : 30m - Counterweight ratio : 50% - Voltage : 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
XAF4	1250	1	400mm	5 x Ø10mm	831	17	31	8.3	1700	2403
		1.6				26	39	13,3		2404
		2				32	50	16,6		3401
		2.5				39	64	20,8		3402
	1600	1	320mm	9 x Ø8mm	841	21	31	10,5	2000	2403
		1.6				32	48	16,8		3402
		2				40	62	21		3403
		1	400mm	7 x Ø10mm	1081	24	40	10,8		2403
	2000	1.6				36	53	17,3		3402
		1	320mm	10 x Ø8mm	1038	28	40	13	2300	2404
		1.6				42	62	20,8		3403

Operating cycle: S5 – 40% – 180 starts per hour.

The current values are an indication but may vary due to specific operating parameters.
For more precise calculations, you will need to contact Leroy-Somer.

XAF4

PM synchronous gearless motors for elevators

Roping 1:1

Travel : 30m - Counterweight ratio : 50% - Voltage : 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
XAF4	630	1	400mm	7 x Ø10mm	991	12	17	5.0	1000	2401
		1.6				18	25	7.9		2403
		2				21	38	9.9		2403
		2.5				26	41	12.4		2404
	800	1	320mm	9 x Ø8mm	944	13	19	5.9	1100	2402
		1.6				20	34	9.4		2403
		2				24	36	11.8		2403
		2.5				30	46	14.7		3401
		1	400mm	7 x Ø10mm	1213	16	23	6.1		2402
		1.6				23	33	9.7		2403
		2				28	43	12.1		2404
		2.5				32	47	14.6		3402
	1000	1	320mm	10 x Ø8mm	1167	18	25	7.3	1200	2403
		1.6				27	41	11.7		2404
		2				32	47	14.6		3402

Brakes

Fail safe axial brakes – TUV listed

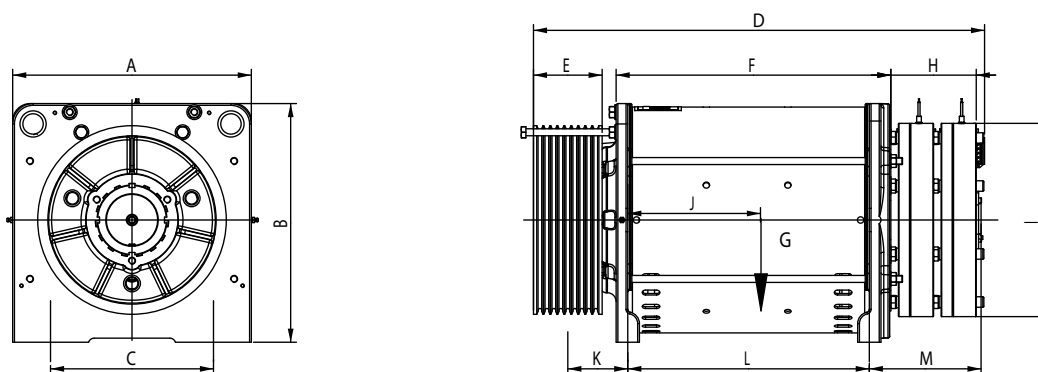
	XAF4	
Pick up Voltage per coil	104VDC	207VDC
Holding Voltage per coil	52VDC	104VDC
Pick up Power per coil	270W	
Holding Power per coil	52W	

Encoder: ECN 413 Absolute encoder

Option: 4096 points incremental encoder ERN 426

Dimensions

XAF4



Type	Main dimensions (mm)											
	End shield dimensions		C	D	E	F	H	I	J	K	L	M
	A	B										
XAF4 320 mm	410	410	280	827	191	472	146,6	332	213,2	120	415	197
XAF4 400 mm									206			

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

XAF6

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55 dB (A) at 1m
- Sheave standard hardness: 50 HRC
- Thermal protection: PTC thermistor

In compliance with:

- 95/16/CE elevator guideline
- EN81.1 European Standard

Technical characteristics

	XAF6	
Sheave diameter (mm)	400	520
Sheave usable width (mm)	191	191
Shaft Load (kg)	6000	
Number of poles	16	
Max. Speed (min ⁻¹)	240	
Nominal torque (Nm)	1600	
Maximum torque (Nm)	2600	
Max. Number of brakes	2	
Max. Braking torque per brake (Nm)	1700	
Motor weight (kg)	570	596
Machine Inertia (kg.m ²)	2.4	4.6

Selection

Roping 2:1

Travel : 30m - Counterweight ratio : 50% - Voltage : 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
XAF6	1600	1	520mm	5 x Ø13mm	1450	25	39	11,2	2200	2404
		1.6				40	61	17,9		3402
		2				51	82	22,3		4401
		2.5				65	111	27,9		4402
	2000	1	400mm	9 x Ø10mm	1360	29	43	13,6	2600	3401
		1.6				46	68	21,8		3403
		2				57	88	27,2		4403
		2.5				73	118	34		4402
	2500	1	520mm	5 x Ø13mm	1751	34	52	13,5	3200	3402
		1.6				54	82	21,5		4401
		2				62	92	26,8		4402
		2.5				80	123	33,4		4403

Operating cycle: S5 – 40% – 180 starts per hour.

The current values are an indication but may vary due to specific operating parameters.
For more precise calculations, you will need to contact Leroy-Somer.

XAF6

PM synchronous gearless motors for elevators

Roping 1:1

Travel : 30m - Counterweight ratio : 50% - Voltage : 400V - Single Wrap - No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
XAF6	800	1	520mm	5 x Ø13mm	1437	13	19	5.5	1200	2401
		1.6				20	29	8.8		2403
		2				25	38	11.1		2404
		2.5				31	51	13.8		3401
		1				15	22	6.7		2402
	1000	1.6	400mm	9 x Ø10mm	1349	23	34	10.8	1400	2403
		2				29	44	13.5		2404
		2.5				37	59	16.9		3402
		1				17	25	6.7		2403
		1.6				26	39	10.7		2404
		2	520mm	5 x Ø13mm	1737	33	48	13.4		3402
		2.5				41	60	16.7		3403
		1				20	29	8.3		2403
		1.6				31	45	13.3		3401
		2				40	60	16.6		3402
	1250	2.5				51	80	20.8		4401

Brakes

Fail safe axial brakes – TUV listed

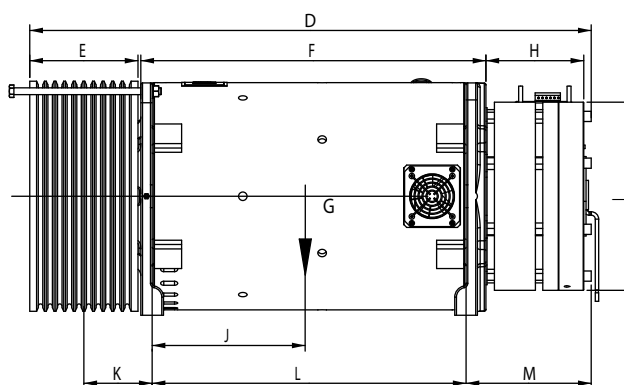
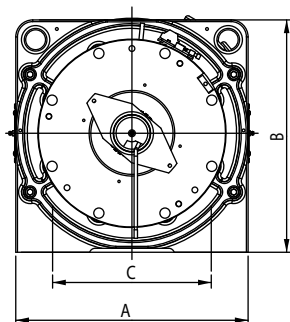
	XAF6	
Pick up Voltage per coil	104VDC	207VDC
Holding Voltage per coil	52VDC	104VDC
Pick up Power per coil	480W	
Holding Power per coil	120W	

Encoder: ECN 413 Absolute encoder

Option: 4096 points incremental encoder ERN 426

Dimensions

XAF6



Type	Main dimensions (mm)											
	End shield dimensions		C	D	E	F	H	I	J	K	L	M
	A	B										
XAF6 400 mm	481	410	280	940	191	561	170.7	332	251	120	504	221
XAF6 520 mm									236			

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

XAF4 NA ranges

PM synchronous gearless motors for elevators

General information

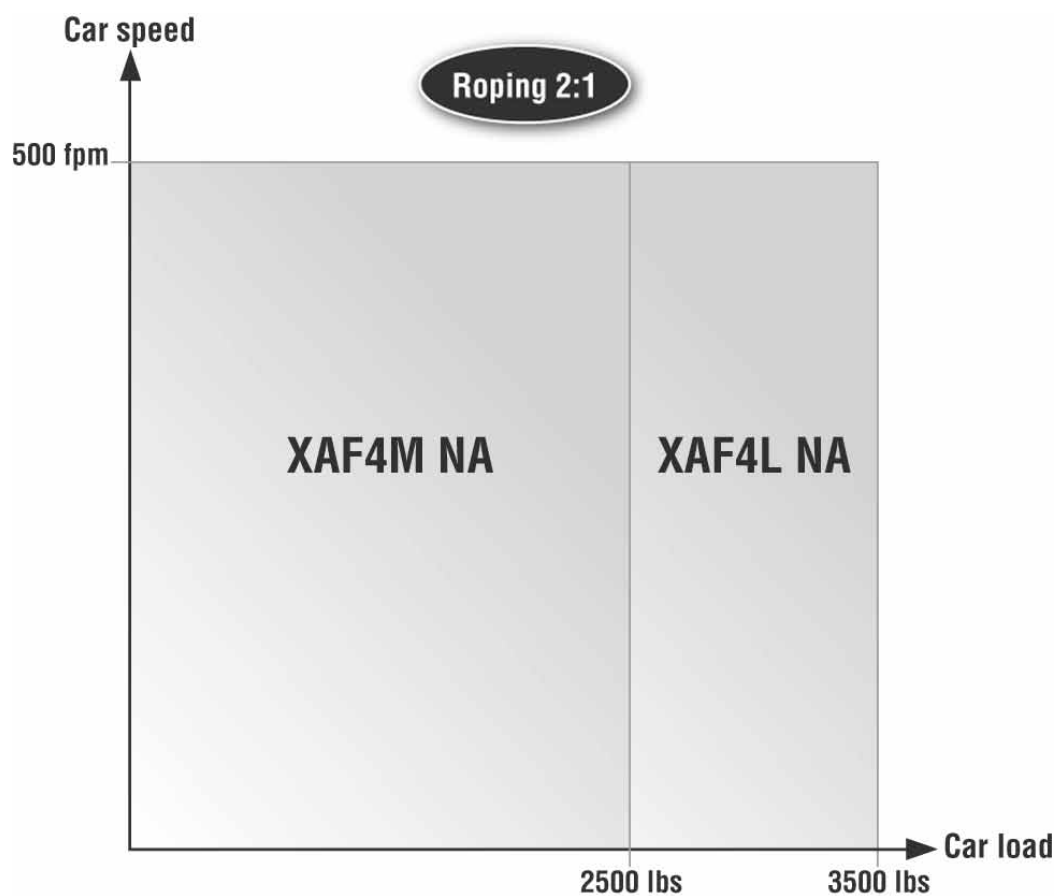


Motor features

- Gearless Permanent Magnet motors
- Smooth and silent operations
- Up to 4.4T static load
- Reduced Maintenance
- Hardened grooves
- Absolute encoder
- ASME A17.1 / CSA B44 compliance
- CSA listed

Applications

- Machine Room Less
- Modernization
- New Installation



XAF4M NA

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55 dB (A) at 1m
- Sheave standard hardness: 50 HRC
- Thermal protection: PTC thermistor

In compliance with:
- ASME A17.1 / CSA B44

Technical characteristics

	XAF4M NA
Sheave diameter (mm)	400
Sheave usable width (mm)	126
Shaft Load (lbs)	9700
Number of poles	16
Max. Speed (min ⁻¹)	240
Nominal torque (Nm)	750
Maximum torque (Nm)	1500
Number of service brakes	1
Max. Braking torque per service brakes (Nm)	1000
Number of emergency brakes	2
Max. Braking torque per emergency brake (Nm)	875
Motor weight (lbs)	992
Machine Inertia (kg.m ²)	0.71

Selection

Roping 2:1

Travel : 80ft – Counterweight ratio : 50% - Voltage : 400V – Single Wrap – No rope compensation

Motor	Cabin Load (lbs)	Speed (fpm)	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (lbs)	Suggested Unidrive SP
XAF4M NA	1500	125	5 x Ø10mm	500	6	8	4.2	2200	1405
		200			10	16	6.7		2401
		350			17	29	11.7		2403
		500			24	43	16.2		3402
	2100	125	5 x Ø10mm	653	8	11	5.5	3000	1406
		200			13	21	8.7		2402
		350			23	39	15.6		3402
		500			31	55	21.6		3403
	2500	125	6 x Ø10mm	767	10	15	6.4	5100	2401
		200			15	26	10.2		2403
		350			27	50	18.5		3403
		500			37	72	25.7		4401

Operating cycle: S5 – 40% – 180 starts per hour.

The current values are an indication but may vary due to specific operating parameters.
For more precise calculations, you will need to contact Leroy-Somer.

XAF4M NA

PM synchronous gearless motors for elevators

Roping 1:1

Travel : 30m - Counterweight ratio : 50% - Voltage : 400V - Single Wrap - No rope compensation

Motor	Cabin Load (lbs)	Speed (fpm)	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (lbs)	Suggested Unidrive SP
XAF4M NA	800	125	5 x Ø10mm	517	4	6	2.1	1500	1404
		200			5	8	3.5		1405
		350			9	16	6.3		2401
		500			13	24	8.5		2403
	1000	125	5 x Ø10mm	625	4	6	2.7	1800	1404
		200			6	10	4.2		1406
		350			11	19	7.5		2402
		500			15	27	10.5		2403
	1200	125	6 x Ø10mm	745	5	7	2.3	2000	1404
		200			8	13	5		2401
		350			13	22	9		2403
		500			18	32	12.5		3401

Brakes

Fail safe axial brakes – TUV listed

	Service (1 coil)	Emergency (2 coils in series)
Pick up Voltage	207VDC	207VDC
Holding Voltage	104VDC	104VDC
Pick up Power	240W	300W
Holding Power	60W	66W

Optional brake supply – CDF9 card:

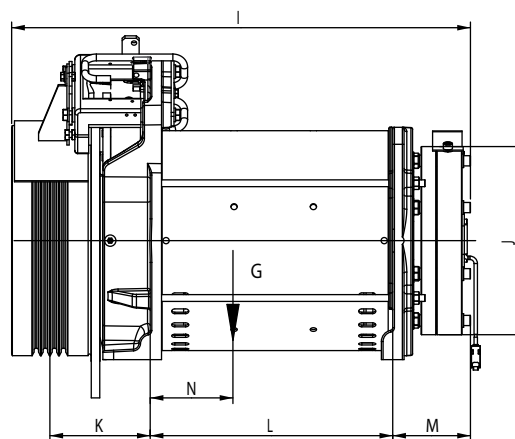
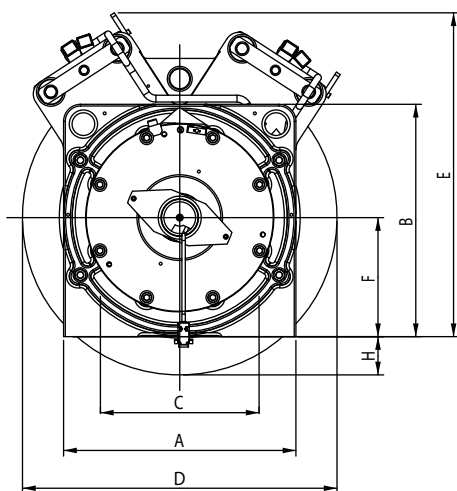
207VDC & 104VDC supplied from a 230VAC network

Encoder: ECN 413 Absolute encoder

Option: 4096 points incremental encoder ERN 426

Dimensions

XAF4M NA



Type	Main dimensions (mm)												
	A	B	C	D	E	F	H	I	J	K	L	M	N
XAF4M NA	410	410	370	560	571	210	70	703	332	175	333	125	98

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

XAF4L NA

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55 dB (A) at 1m
- Sheave standard hardness: 50 HRC
- Thermal protection: PTC thermistor

In compliance with:
- ASME A17.1 / CSA B44

Technical characteristics

	XAF4L NA
Sheave diameter (mm)	400
Sheave usable width (mm)	126
Shaft Load (lbs)	9700
Number of poles	16
Max. Speed (min ⁻¹)	240
Nominal torque (Nm)	1150
Maximum torque (Nm)	2000
Number of service brakes	1
Max. Braking torque per service brakes (Nm)	1500
Number of emergency brakes	2
Max. Braking torque per emergency brake (Nm)	875
Motor weight (lbs)	1135
Machine Inertia (kg.m ²)	0.93

Selection

Roping 2:1

Travel : 80ft – Counterweight ratio : 50% - Voltage : 400V – Single Wrap – No rope compensation

Motor	Cabin Load (lbs)	Speed (fpm)	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (lbs)	Suggested Unidrive SP
XAF4L NA	2800	125	7 x Ø10mm	880	11	19	7.6	4000	2403
		200			20	37	12.0		3401
		350			33	62	20.0		4401
		500			46	86	28.5		4402
	3000	125	7 x Ø10mm	936	12	21	8.1	4500	2402
		200			21	39	12.8		3402
		350			35	66	21.2		4401
		500			49	92	30.3		4403
	3500	125	8 x Ø10mm	1029	14	24	9.4	5000	2403
		200			23	43	14.1		3402
		350			40	74	24.7		4402
		500			57	106	35.3		4403

Operating cycle: S5 – 40% – 180 starts per hour.

The current values are an indication but may vary due to specific operating parameters.
For more precise calculations, you will need to contact Leroy-Somer.

XAF4L NA

PM synchronous gearless motors for elevators

Roping 1:1

Travel : 30m - Counterweight ratio : 50% - Voltage : 400V - Single Wrap - No rope compensation

Motor	Cabin Load (lbs)	Speed (fpm)	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (lbs)	Suggested Unidrive SP
XAF4L NA	1300	125	7 x Ø10mm	773	5	9	3.3	2500	1405
		200			8	15	5.3		2401
		350			13	24	8.8		2403
		500			21	42	12.5		3402
	1500	125	7 x Ø10mm	890	6	11	3.8	2500	1406
		200			9	16	6.2		2401
		350			15	27	10.2		2404
		500			24	46	14.4		3403
	1800	125	8 x Ø10mm	1040	7	12	4.4	3000	1406
		200			11	19	7.2		2402
		350			17	31	11.9		3401
		500			28	54	16.9		3403

Brakes

Fail safe axial brakes – TUV listed

	Service (1 coil)	Emergency (2 coils in series)
Pick up Voltage	207VDC	207VDC
Holding Voltage	104VDC	104VDC
Pick up Power	240W	300W
Holding Power	60W	66W

Optional brake supply – CDF9 card:

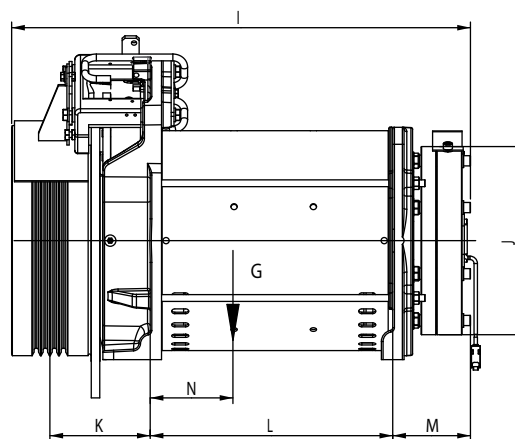
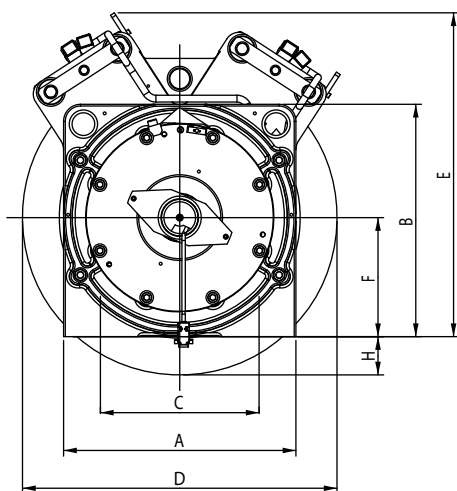
207VDC & 104VDC supplied from a 230VAC network

Encoder: ECN 413 Absolute encoder

Option: 4096 points incremental encoder ERN 426

Dimensions

XAF4L NA



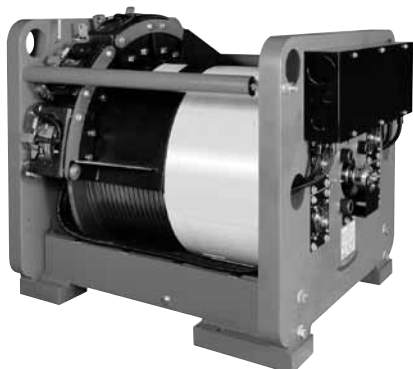
Type	Main dimensions (mm)												
	A	B	C	D	E	F	H	I	J	K	L	M	N
XAF4L NA	410	410	370	560	571	210	70	810	332	177	428	137	146

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

Z range PM synchronous gearless motors for elevators

General information

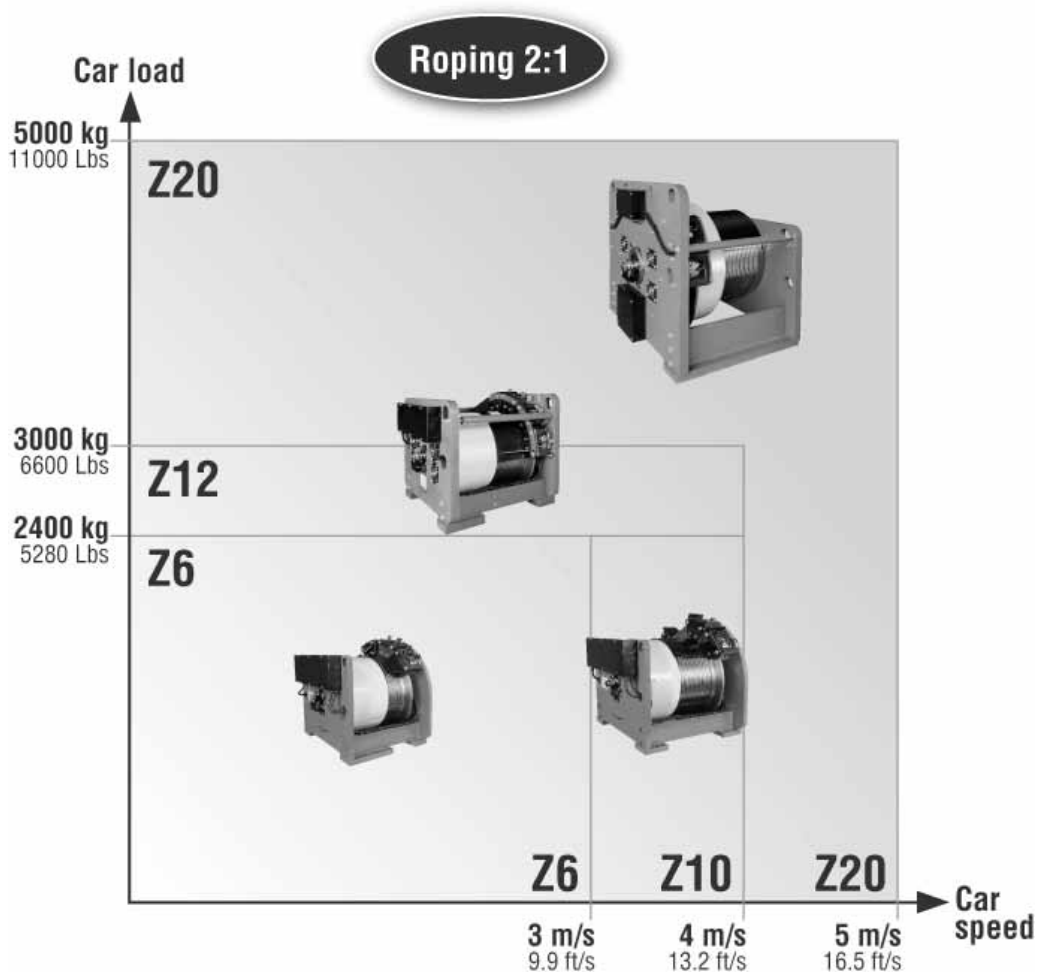


Motor features

- Gearless Permanent Magnet motors
- External Rotor
- Smooth and silent operations
- Absolute encoder
- Up to 22T static load
- Double wrapping available
- Bedplate with deflection sheave
- CSA listed

Applications

- Modernization
- New Installation
- High rise buildings and Hospitals



Z6

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55dB (A) at 1m
- Sheave standard hardness: 220 to 260Hb
- Thermal protection: PTC thermistor

In compliance with:

- 95/16/CE Elevator guideline
- EN81.1 European Elevator Standard
- ASME A17.1 North American Elevator Safety code

Technical characteristics

	Z6 S	Z6 M	Z6 L
Sheave diameter (mm)		530	
Sheave usable width (mm)		140	
Shaft Load (kg)		6000	
Number of poles		32	
Max. Speed (min ⁻¹)		290	
Nominal torque (Nm)	1200	1600	1900
Maximum torque (Nm)	2200	2850	3600
Max. Number of brakes		4	
Max. Braking torque per brake (Nm)		1100	
Motor weight (kg)	710	780	850
Machine Inertia (kg.m ²)	9.4	10.7	11.9

Selection

Roping 2:1

Travel : 80ft – Counterweight ratio : 50% - Voltage : 400V – Single Wrap – No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
Z6S	1250	1	530mm	4 x Ø13mm	1172	22	41	8.8	2500	3402
		1.6				33	62	14.1		4401
		2				41	86	17.7		4402
		3				58	122	26.5		5401
		4				77	162	35.4		5402
Z6M	1600	1	530mm	5 x Ø13mm	1494	28	51	11.3	3000	3403
		1.6				42	77	18.0		4402
		2				52	106	22.5		4403
		3				74	151	33.8		5402
		4				98	199	45.0		6401
Z6L	2000	1	530mm	6 x Ø13mm	1853	35	60	14.0	3000	4401
		1.6				52	90	22.3		4402
		2				65	124	27.9		5401
		3				91	173	41.9		5402
		4				122	232	55.9		6402

Operating cycle: S5 – 40% – 180 starts per hour.

The current values are an indication but may vary due to specific operating parameters. For more precise calculations, you will need to contact Leroy-Somer.

For speeds higher than 180rpm (2,5m/s in roping 2:1), the motor will be equipped with forced ventilations.

For speeds lower than 126rpm (1.8m/s in roping 2:1), the maximum nominal torque is increased by 10% when forced ventilations are used.

Z6

PM synchronous gearless motors for elevators

Roping 1:1

Travel : 30m – Counterweight ratio : 50% - Voltage : 400V – Single Wrapping

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Number of ropes	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
Z6S	630	1	530mm	4 x Ø13mm	1181	11	19	4.5	1000	2402
		1.6				18	30	7.2		2403
		2				22	41	8.9		3402
		3				31	58	13.4		3403
		4				41	77	17.8		4402
Z6M	800	1	530mm	5 x Ø13mm	1495	14	24	5.6	1500	2403
		1.6				23	40	9.1		3402
		2				28	54	11.3		3403
		3				39	75	16.9		4402
		4				52	100	22.5		4403
Z6L	1000	1	530mm	6 x Ø13mm	1854	18	30	7.0	1500	2403
		1.6				28	46	11.3		3403
		2				35	64	14.0		4401
		3				49	89	21.0		4402
		4				65	118	28.0		5401

Brakes

Fail safe axial brakes – TUV listed

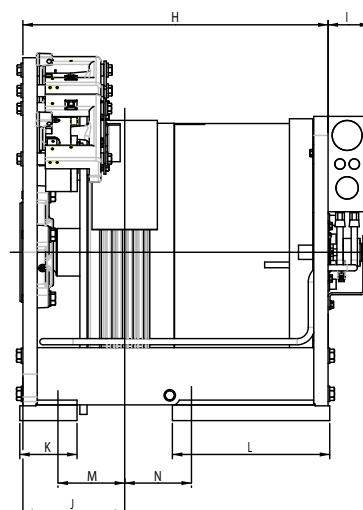
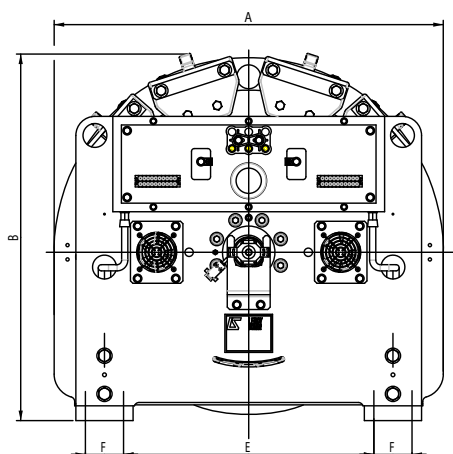
	Z6
Pick up Voltage	103VDC
Holding Voltage	52VDC
Pick up Power	150W
Holding Power	33W

Encoder: ECN 413 Absolute encoder

Option: 4096 points incremental encoder ERN 423

Dimensions

Z6



Type	Main dimensions (mm)										
	A	B	E	F	H	I	J	K	L	M	N
Z6S					540						
Z6M	816	813	525	80	590	88.5	213.5	120	230	140	140
Z6L					640						

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

Z10

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55dB (A) at 1m
- Sheave standard hardness: 220 to 260Hb
- Thermal protection: PTC thermistor

In compliance with:

- 95/16/CE Elevator guideline
- EN81.1 European Elevator Standard
- ASME A17.1 North American Elevator Safety code

Technical characteristics

	Z10S	Z10M	Z10L
Sheave diameter (mm)		530	
Sheave usable width (mm)		245	
Shaft Load (kg)		10000	
Number of poles		32	
Max. Speed (min ⁻¹)		290	
Nominal torque (Nm)	1200	1600	1900
Maximum torque (Nm)	2200	2850	3600
Max. Number of brakes		4	
Max. Braking torque per brake (Nm)		1100	
Motor weight (kg)	810	880	950
Machine Inertia (kg.m ²)	13	16	20

Selection

Roping 2:1

Travel : 80ft – Counterweight ratio : 50% - Voltage : 400V – Single Wrap – No rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
Z10S	1500	1	530mm	4 x Ø13mm	1119	25	47	8.4	2500	2404
		1.6				38	71	13.5		3403
		2				47	88	16.9		4401
		3				69	128	25.3		4403
		4				91	169	33.8		5402
Z10M	2000	1	530mm	4 x Ø13mm	1501	28	49	11.3	3000	2404
		1.6				42	73	18.0		3403
		2				51	90	22.7		4401
		3				74	130	34.0		4403
		4				98	171	45.3		5402
Z10L	2500	1	530mm	4 x Ø13mm	1883	33	54	14.2	3000	3402
		1.6				50	81	22.7		4401
		2				61	100	28.4		4402
		3				89	146	42.6		5401
		4				117	192	56.9		5402

Operating cycle: S5 – 40% – 180 starts per hour.

The current values are an indication but may vary due to specific operating parameters. For more precise calculations, you will need to contact Leroy-Somer.

For speeds higher than 180rpm (2,5m/s in roping 2:1), the motor will be equipped with forced ventilations.

For speeds lower than 150rpm (2m/s in roping 2:1), the maximum nominal torque is increased by 10% when forced ventilations are used.

Z10

PM synchronous gearless motors for elevators

Roping 1:1

Travel : 60m – Counterweight ratio : 50% - Voltage : 400V – Double Wrapping – 100% rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Number of ropes	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
Z10S	800	1	530mm	4 x Ø13mm	1167	15	26	4.4	1300	2402
		1.6				21	36	7.0		2403
		2				26	44	8.8		2404
		3				37	63	13.2		3402
		4				48	82	17.6		4401
Z10M	1000	1	530mm	4 x Ø13mm	1473	16	27	5.6	1500	2402
		1.6				28	36	8.9		2403
		2				26	43	11.1		2403
		3				37	61	16.7		3402
		4				48	79	22.2		4401
Z10L	1250	1	530mm	4 x Ø13mm	1855	18	29	7.0	1500	2403
		1.6				26	40	11.2		2404
		2				31	49	14.0		3401
		3				45	70	21.0		4401
		4				58	91	28.0		4401

Brakes

Fail safe axial brakes – TUV listed

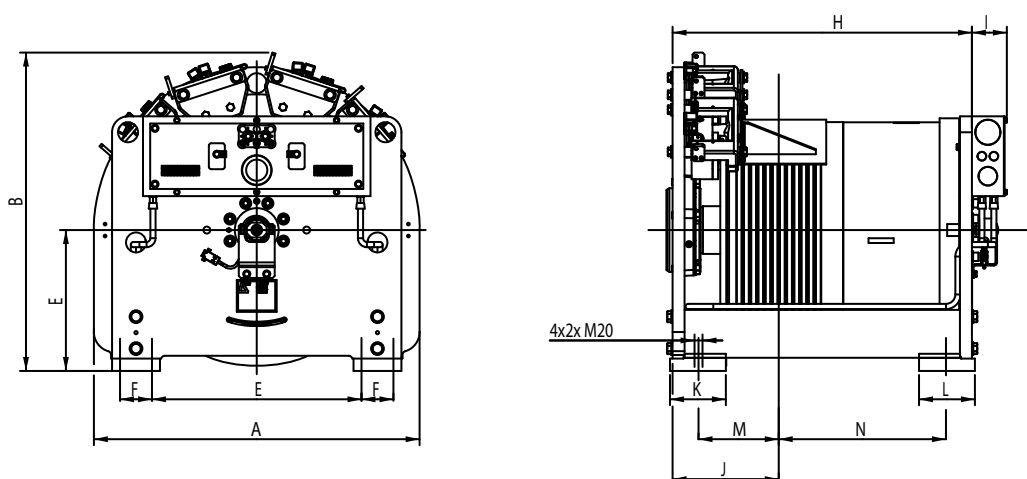
	Z10
Pick up Voltage	103VDC
Holding Voltage	52VDC
Pick up Power	150W
Holding Power	33W

Encoder: ECN 413 Absolute encoder

Option: 4096 points incremental encoder ERN 423

Dimensions

Z10



Type	Main dimensions (mm)										
	A	B	E	F	H	I	J	K	L	M	N
Z10S					649						319
Z10M	816	798	525	80	699	87.5	266	140	140	201	369
Z10L					749						419

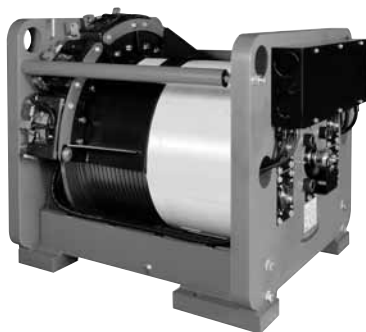
General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

Z12

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55dB (A) at 1m
- Sheave standard hardness: 220 to 260Hb
- Thermal protection: PTC thermistor

- In compliance with:
- 95/16/CE Elevator guideline
 - EN81.1 European Elevator Standard
 - ASME A17.1 North American Elevator Safety code

Technical characteristics

	Z12M	Z12L	Z12VL
Sheave diameter (mm)		530	
Sheave usable width (mm)		245	
Shaft Load (kg)		12000	
Number of poles		32	
Max. Speed (min ⁻¹)		290	
Nominal torque (Nm)	1600	1900	2200
Maximum torque (Nm)	2850	3600	4400
Max. Number of brakes		6	
Max. Braking torque per brake (Nm)		1100	
Motor weight (kg)	1080	1140	1200
Machine Inertia (kg.m ²)	18	23	28

Selection

Roping 2:1

Travel : 60m – Counterweight ratio : 50% - Voltage : 400V – Double Wrapping – 100% rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
Z12M	2000	1,6	530mm	4 x Ø13mm	1565	44	82	18,9	3000	4402
		2				55	102	23,6		4403
		2,5				68	133	29,5		5401
		3				77	151	35,4		5402
		4				103	202	47,2		6401
Z12L	2200	1,6	530mm	4 x Ø13mm	1758	49	90	21,2	3300	4402
		2				61	112	26,5		4403
		2,5				77	149	33,1		5401
		3				87	169	39,8		5402
		4				116	225	53		6402
Z12VL	2500	1,6	530mm	5 x Ø13mm	2018	56	100	24,3	3300	4403
		2				70	125	30,4		5401
		2,5				88	165	38		5402
		3				100	188	45,6		6401
		4				133	250	60,9		6402

Operating cycle: S5 – 40% – 180 starts per hour.

The current values are an indication but may vary due to specific operating parameters. For more precise calculations, you will need to contact Leroy-Somer.

For speeds higher than 180rpm (2,5m/s in roping 2:1), the motor will be equipped with forced ventilations.

For speeds lower than 150rpm (2m/s in roping 2:1), the maximum nominal torque is increased by 10% when forced ventilations are used.

Z12

PM synchronous gearless motors for elevators

Roping 1:1

Travel : 60m – Counterweight ratio : 50% - Voltage : 400V – Double Wrapping – 100% rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Number of ropes	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
Z12M	1000	2	530mm	4 x Ø13mm	1556	29	56	11,7	1500	3403
		2,5				34	66	14,7		4401
		3				41	79	17,6		4402
		4				54	104	23,5		4403
		5				68	132	29,3		5401
Z12L	1250	2	530mm	4 x Ø13mm	1875	35	64	14,3	1500	4401
		2,5				42	72	17,9		4401
		3				50	92	21,4		4403
		4				66	121	28,6		5401
		5				83	153	35,7		5402
Z12VL	1350	2	530mm	5 x Ø13mm	2116	40	74	16	1700	4401
		2,5				46	85	19,9		4402
		3				56	103	23,9		4403
		4				74	136	31,9		5401
		5				92	169	39,9		5402

Brakes

Fail safe axial brakes – TUV listed

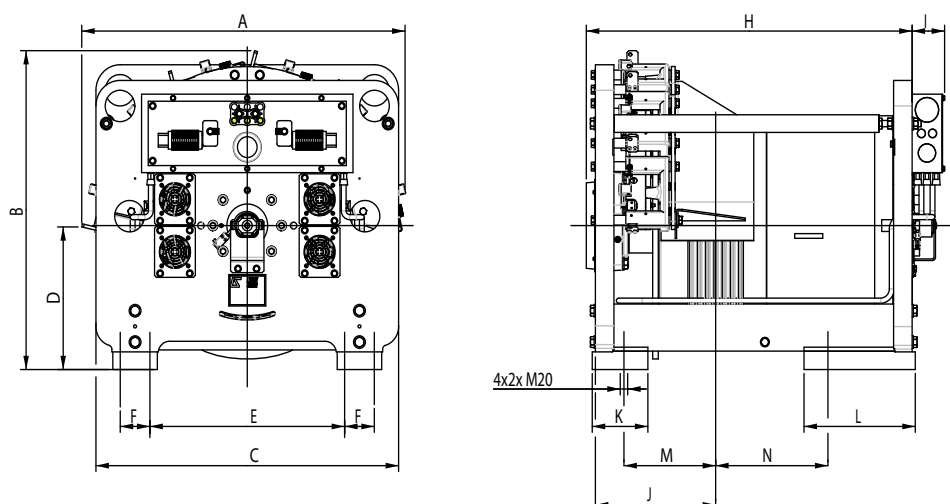
	Z12
Pick up Voltage	103VDC
Holding Voltage	52VDC
Pick up Power	150W
Holding Power	33W

Encoder: ECN 413 Absolute encoder

Option: 4096 points incremental encoder ERN 423

Dimensions

Z12



Type	Main dimensions (mm)													
	A	B	C	D	E	F	H	I	J	K	L	M	N	
Z12M							754							
Z12L	854	813	816	367	525	80	804	87,5	312	150	64,5	225	325	
Z12VL							874							

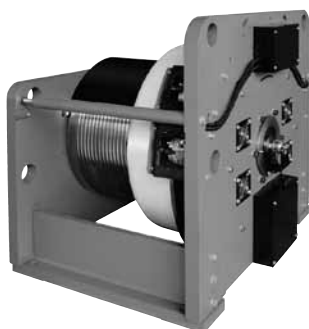
General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

Z20

PM synchronous gearless motors for elevators

General



- Protection: IP 20
- Insulation Class F
- Noise level: Less than 55dB (A) at 1m
- Sheave standard hardness: 220 to 260Hb
- Thermal protection: PTC thermistor

In compliance with:

- 95/16/CE Elevator guideline
- EN81.1 European Elevator Standard
- ASME A17.1 North American Elevator Safety code

Technical characteristics

	Z20M	Z20L	Z20VL
Sheave diameter (mm)		640	
Sheave usable width (mm)		305	
Shaft Load (kg)		22000	
Number of poles		32	
Max. Speed (min ⁻¹)		300	
Nominal torque (Nm)	2970	3960	4950
Maximum torque (Nm)	5345	7130	8910
Max. Number of brakes		8	
Max. Braking torque per brake (Nm)		1660	
Motor weight (kg)	2200	2300	2400
Machine Inertia (kg.m ²)	62	68	76

Selection

Roping 2:1

Travel : 60m – Counterweight ratio : 50% - Voltage : 400V – Double Wrapping – 100% rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Ropes Number & Diameter	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
Z20M	3000	1	640mm	5 x Ø16mm	2736	42	83	17,1	4500	4401
		2				79	156	34,2		5401
		3				111	221	51,3		5402
		4				148	295	68,4		SPMD1402
		5				185	368	85,5		SPMD1404
Z20L	4000	1	640mm	6 x Ø16mm	3659	56	108	22,9	6000	4402
		2				105	204	45,7		5402
		3				149	288	68,6		6401
		4				199	385	91,5		2 x SPMD1401
		5				248	481	114,3		2 x SPMD1401
Z20VL	5000	1	640mm	7 x Ø16mm	4582	70	130	28,6	6500	4403
		2				132	245	57,3		5402
		3				186	346	85,9		SPMD1403
		4				249	461	114,6		2 x SPMD1401
		5				310	576	143,2		2 x SPMD1402

Operating cycle: S5 – 40% – 180 starts per hour.

The current values are an indication but may vary due to specific operating parameters. For more precise calculations, you will need to contact Leroy-Somer.

For speeds higher than 180rpm (3m/s in roping 2:1), the motor will be equipped with forced ventilations.

For speeds lower than 150rpm (2,5m/s in roping 2:1), the maximum nominal torque is increased by 10% when forced ventilations are used.

Z20

PM synchronous gearless motors for elevators

Roping 1:1

Travel : 60m – Counterweight ratio : 50% - Voltage : 400V – Double Wrapping – 100% rope compensation

Motor	Cabin Load (kg)	Speed (m/s)	Sheave Diameter	Number of ropes	Torque (Nm)	I Nominal (A)	I Acceleration (A)	Power (kW)	Max. Cabin weight (kg)	Suggested Unidrive SP
Z20M	1500	1	640mm	5 x Ø16mm	2702	21	41	8,4	3000	2403
		2				41	81	16,9		4401
		3				58	114	25,3		4403
		4				78	153	33,8		5402
		5				97	191	42,2		6401
Z20L	2000	1	640mm	6 x Ø16mm	3625	28	52	11,3	3500	3401
		2				56	104	22,7		4401
		3				78	146	34		5401
		4				104	195	45,3		5402
		5				130	243	56,6		6401
Z20VL	2500	1	640mm	7 x Ø16mm	4548	35	61	14,2	3500	3402
		2				70	123	28,4		4403
		3				98	173	42,6		5402
		4				131	230	56,9		5402
		5				164	288	71,1		SPMD1402

Brakes

Fail safe axial brakes – TUV listed

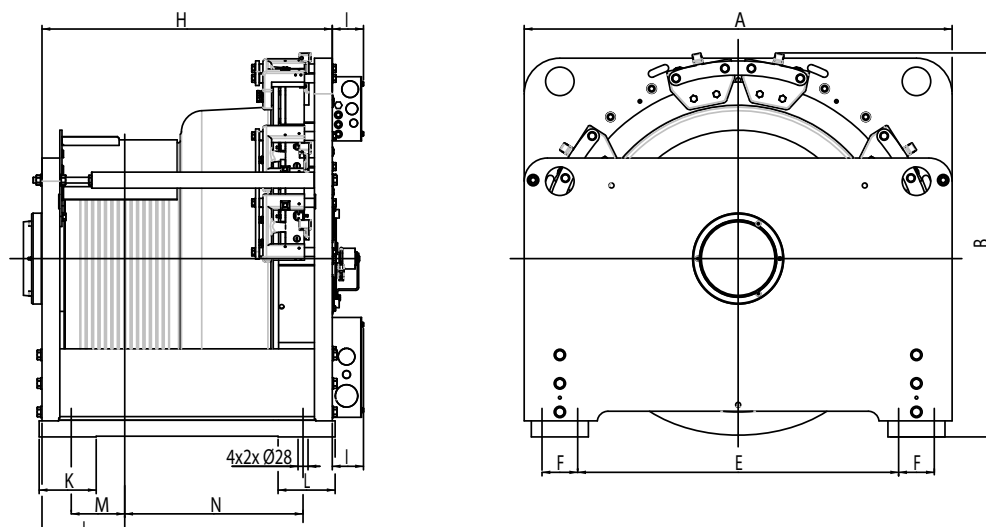
	Z20
Pick up Voltage	103VDC
Holding Voltage	52VDC
Pick up Power	150W
Holding Power	33W

Encoder: ECN 413 Absolute encoder

Option: 4096 points incremental encoder ERN 423

Dimensions

Z20



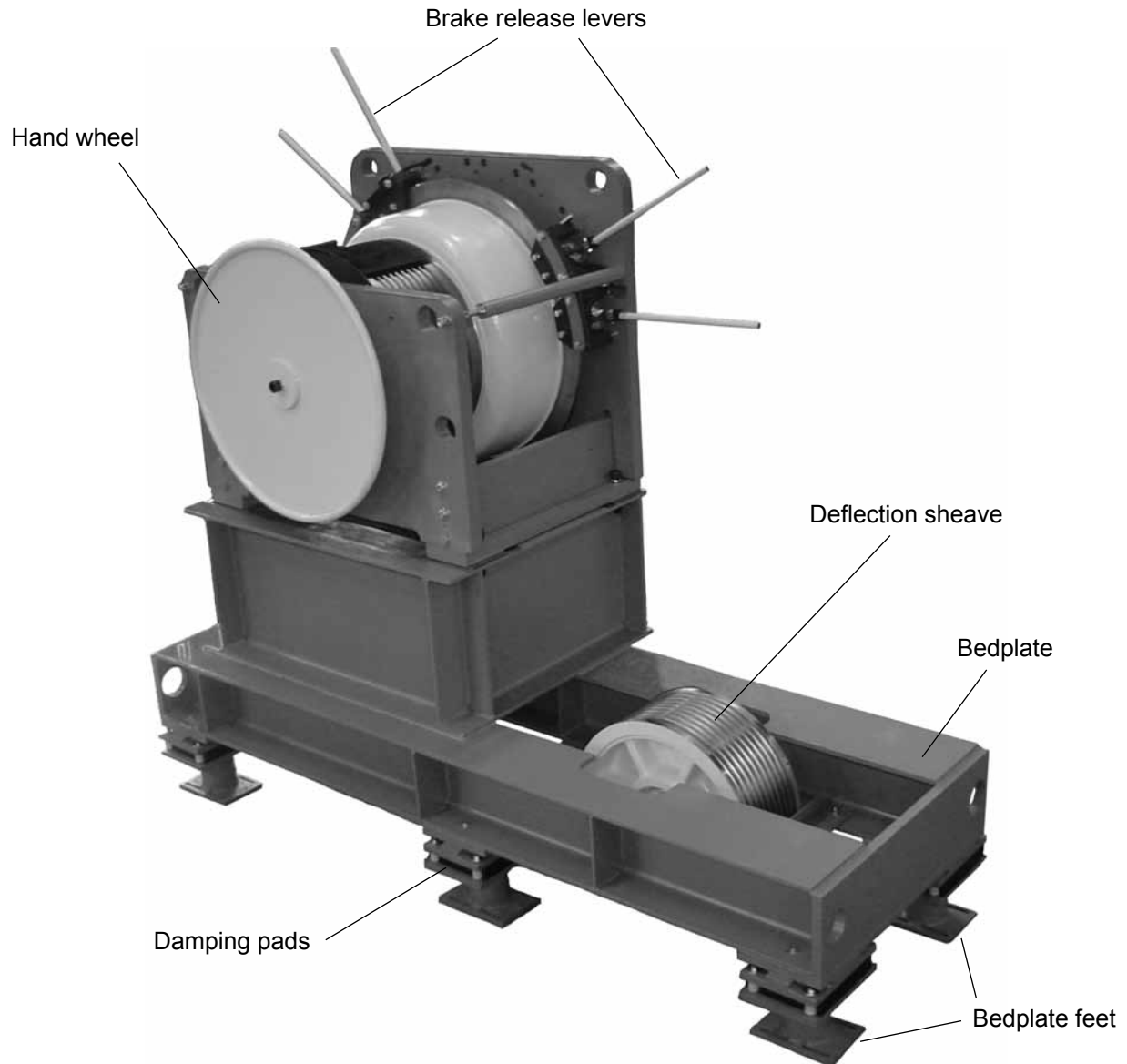
Type	Main dimensions (mm)										
	A	B	E	F	H	I	J	K	L	M	N
Z20M											
Z20L	1200	1077	900	100	814	87,5	232	160	160	150	500
Z20VL											

General tolerances: ± 10 mm

Appearance and dimensions subject to modification. If you require exact dimensions, ask for a certified drawing when you place your order.

Z range PM synchronous gearless motors for elevators

Mechanical options



Bedplate : customized for specific projects, the bedplate is designed in order to allow the right rope center distance and a wrapping angle large enough to prevent any rope slipping problem.

Damping pads : designed to reduce the vibrations transmitted to the system

Brake release levers : these levers are used to open the brakes in case of emergency situations

Hand wheel : it is used to start a cabin motion when the cabin is perfectly balanced with the counterweight and when emergency rescue operations need to be performed.

Bedplate feet : these feet facilitate the installation of the Motor and the Bedplate in the Machine room

XA & Z ranges

PM synchronous gearless motors for elevators

Encoders



Heidenhain – ECN 413

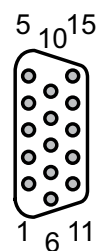
8192 positions (13 bits)
1Vpp, 2048 periods/revolution
Absolute position value : Endat 2.1
Voltage supply : +5VDC
IP 64

Heidenhain – ERN 426

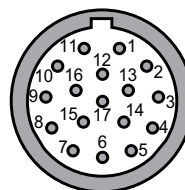
4096 positions
Incremental encoder
IP 64

CONNECTEUR		TYPE DE CODEUR	
HD15 PIN	M23 17 P	ECN 413	ERN 426
1	15	Cos	A
2	16	CosRef	A/
3	12	Sin	B
4	13	SinRef	B/
5	14	Data	Z
6	17	Data \	Z /
7		-	U
8		-	U /
9		-	V
10		-	V /
11	8	Clock _{out}	W
12	9	Clock _{out} \	W /
13	1 & 7	+ 5V	+ 5V
14	4 & 10	0V	0V
15	11	-	-

connecteur
HD15 mâle



connecteur
M23 17p male



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POLAND
FZN MARBAISE LS

ROMANIA
LEROY-SOMER REPRESENTATIVE OFFICE

RUSSIA
LEROY-SOMER DIVISION

SAUDI ARABIA
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