

GreenStar[®]

Gearless Machines for Elevators

POWERING ELEVATORS IN FOUR CONTINENTS





GreenStar®

GreenStar® from Bharat Bijlee is a new-generation gearless machine for elevators powered by a permanent magnet synchronous motor. Compact modular design, light weight and low operating noise levels make it especially suitable for machine room-less applications. GreenStar® has

outstanding torque and cogging characteristics and no oil spillage problems. Real savings in energy consumption, space and routine maintenance, contribute to a significant reduction in cost of ownership.

In Collaboration with Permagsa, Spain



NO MACHINE ROOM



GEARLESS



LOW NOISE









SIGNIFICANT ENERGY SAVING



COMPACT DESIGN

CAPACITY FOR GREENSTAR SERIES

	Series	Rated Load	Rated Speed
	GreenStar® 12 pole	6 to 13 passengers	1.0 to 1.25 m/s
	GreenStar® 18 pole	15 to 26 passengers	1.0 to 2.0 m/s
	GreenStarMAX®	1600 to 5000 kg	1.0 to 1.5 m/s
	GreenStarmini®	Upto 8 passengers	0.32 to 0.63 m/s
	GreenStar® 1:1	Upto 6 passengers	1.0 m/s
	GreenStarBELT®	6 to 20 passengers	1.0 m/s

GC 06 TECHNICAL SPECIFICATIONS

Model	GC-06-320-100	GC-06-320-125	GC-06-200-100	GC-06-240-100
Duty Load (kg)	408	408	408	408
Passenger Capacity	6	6	6	6
Speed upto (m/s)	1	1.25	1	1
Sheave Diameter (mm)	320	320	200	240
Rope Diameter (mm)	8	8	8	8
No. of Ropes	4	4	4	4
Roping Ratio	2:1	2:1	2:1	2:1
RPM	120	150	190	160
Rated Frequency (Hz)	12	15	19	16
Rated Torque (Nm)	215	215	135	150
Rated Output Power (kW)	2.7	3.4	2.68	2.5
Rated Output Power (HP)	3.6	4.5	3.59	3.35
Rated Current (Amp)	8.5	10	8.5	7
Rated Voltage (volts)	380	380	380	380
Starts/Hour	180	180	180	180
Static Load (kg)	1300	1300	1300	1300
Machine weight (kg)	125	125	120	135

GC 08 TECHNICAL SPECIFICATIONS

Model	GC-08-320-100	GC-08-320-125	GC-08-200-100	GC-08-240-100
Duty Load (kg)	544	544	544	544
Passenger Capacity	8	8	8	8
Speed upto (m/s)	1	1.25	1	1
Sheave Diameter (mm)	320	320	200	240
Rope Diameter (mm)	8	8	8	8
No. of Ropes	4	4	4	4
Roping Ratio	2:1	2:1	2:1	2:1
RPM	120	150	190	160
Rated Frequency (Hz)	12	15	19	16
Rated Torque (Nm)	270	270	180	215
Rated Output Power (kW)	3.4	4.2	3.58	3.6
Rated Output Power (HP)	4.5	5.6	4.69	4.83
Rated Current (Amp)	10.7	11.5	8	9.7
Rated Voltage (volts)	380	380	380	380
Starts/Hour	180	180	180	180
Static Load (kg)	1300	1300	1300	1300
Machine weight (kg)	150	150	145	145

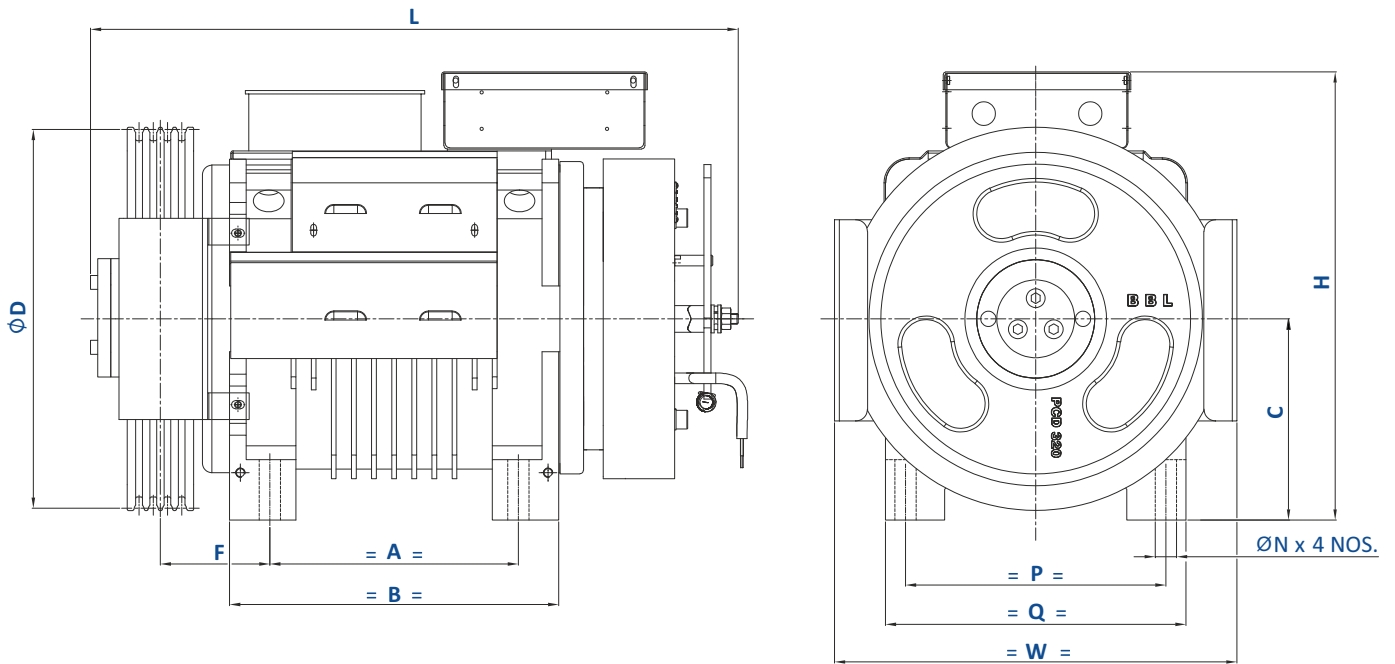
GC 10 TECHNICAL SPECIFICATIONS

Model	GC-10-320-100	GC-10-320-125	GC-10-200-100
Duty Load (kg)	680	680	680
Passenger Capacity	10	10	10
Speed upto (m/s)	1	1.25	1.0
Sheave Diameter (mm)	320	320	200
Rope Diameter (mm)	8	8	8
No. of Ropes	5	5	5
Roping Ratio	2:1	2:1	2:1
RPM	120	150	190
Rated Frequency (Hz)	12	15	19.1
Rated Torque (Nm)	335	335	220
Rated Output Power (kW)	4.2	5.2	4.4
Rated Output Power (HP)	5.6	7	5.9
Rated Current (Amp)	14	15	11
Rated Voltage (volts)	380	380	380
Starts/Hour	180	180	180
Static Load (kg)	2300	2300	2300
Machine weight (kg)	190	190	140

GC 13 TECHNICAL SPECIFICATIONS

Model	GC-13-320-100	GC-13-320-125
Duty Load (kg)	884	884
Passenger Capacity	13	13
Speed upto (m/s)	1	1.25
Sheave Diameter (mm)	320	320
Rope Diameter (mm)	8	8
No. of Ropes	6	6
Roping Ratio	2:1	2:1
RPM	120	150
Rated Frequency (Hz)	12	15
Rated Torque (Nm)	435	435
Rated Output Power (kW)	5.4	6.8
Rated Output Power (HP)	7.2	9.1
Rated Current (Amp)	17.5	20
Rated Voltage (volts)	380	380
Starts/Hour	180	180
Static Load (kg)	2300	2300
Machine weight (kg)	200	200

DIMENSIONS



Model	A	B	C	D	P	Q	F	L	W	H	N
GC-06-200-100	165	243	142	200	220	254	111.5	500	294	352	18
GC-08-200-100	210	278					107			555	
GC-10-200-100	210	278	170	200	220	254	107	530	294	380	18
GC-06-240-100	165	243	142	240	220	254	114	530	294	352	18
GC-08-240-100	210	278	170				109.5			560	
GC-06-320-100	165	243	170	320	220	254	97	525	340	380	18
GC-06-320-125											
GC-08-320-100	210	278	170	320	220	254	92.5	575	340	380	18
GC-08-320-125											
GC-10-320-100	210	278	170	320	220	254	98	595	340	380	18
GC-10-320-125											
GC-13-320-100	265	353	170	320	220	254	125	660	340	380	18
GC-13-320-125											

GSH 15 TECHNICAL SPECIFICATIONS

Model	GSH 15-320-100	GSH 15-320-125	GSH 15-320-150	GSH 15-320-175	GSH 15-320-200
Duty Load (kg)	1020	1020	1020	1020	1020
Passenger Capacity	15	15	15	15	15
Speed upto (m/s)	1	1.25	1.5	1.75	2
Sheave Diameter (mm)	320	320	320	320	320
Rope Diameter (mm)	8	8	8	8	8
No. of Ropes	6	6	6	6	6
Roping Ratio	2:1	2:1	2:1	2:1	2:1
RPM	120	150	180	210	240
Rated Frequency (Hz)	18	22.5	27	31.5	36
Rated Torque (Nm)	500	500	500	500	500
Rated Output Power (kW)	6.28	7.85	9.42	11	12.56
Rated Output Power (HP)	8.42	10.53	12.63	14.75	16.84
Rated Current (Amp)	19.5	24.5	25	29.5	30
Rated Voltage (volts)	380	380	380	380	380
Starts/Hour	180	180	180	180	180
Static Load (kg)	3500	3500	3500	3500	3500
Machine weight (kg)	230	230	230	230	230

GSH 16 TECHNICAL SPECIFICATIONS

Model	GSH 16-320-100	GSH 16-320-125	GSH 16-320-150	GSH 16-320-175	GSH 16-320-200
Duty Load (kg)	1088	1088	1088	1088	1088
Passenger Capacity	16	16	16	16	16
Speed upto (m/s)	1	1.25	1.5	1.75	2
Sheave Diameter (mm)	320	320	320	320	320
Rope Diameter (mm)	8	8	8	8	8
No. of Ropes	8	8	8	8	8
Roping Ratio	2:1	2:1	2:1	2:1	2:1
RPM	120	150	180	210	240
Rated Frequency (Hz)	18	22.5	27	31.5	36
Rated Torque (Nm)	535	535	535	535	535
Rated Output Power (kW)	6.72	8.4	10.1	11.76	13.44
Rated Output Power (HP)	9.01	11.26	13.54	15.77	18.02
Rated Current (Amp)	20	25.5	26	30	31.5
Rated Voltage (volts)	380	380	380	380	380
Starts/Hour	180	180	180	180	180
Static Load (kg)	3500	3500	3500	3500	3500
Machine weight (kg)	235	235	235	235	235

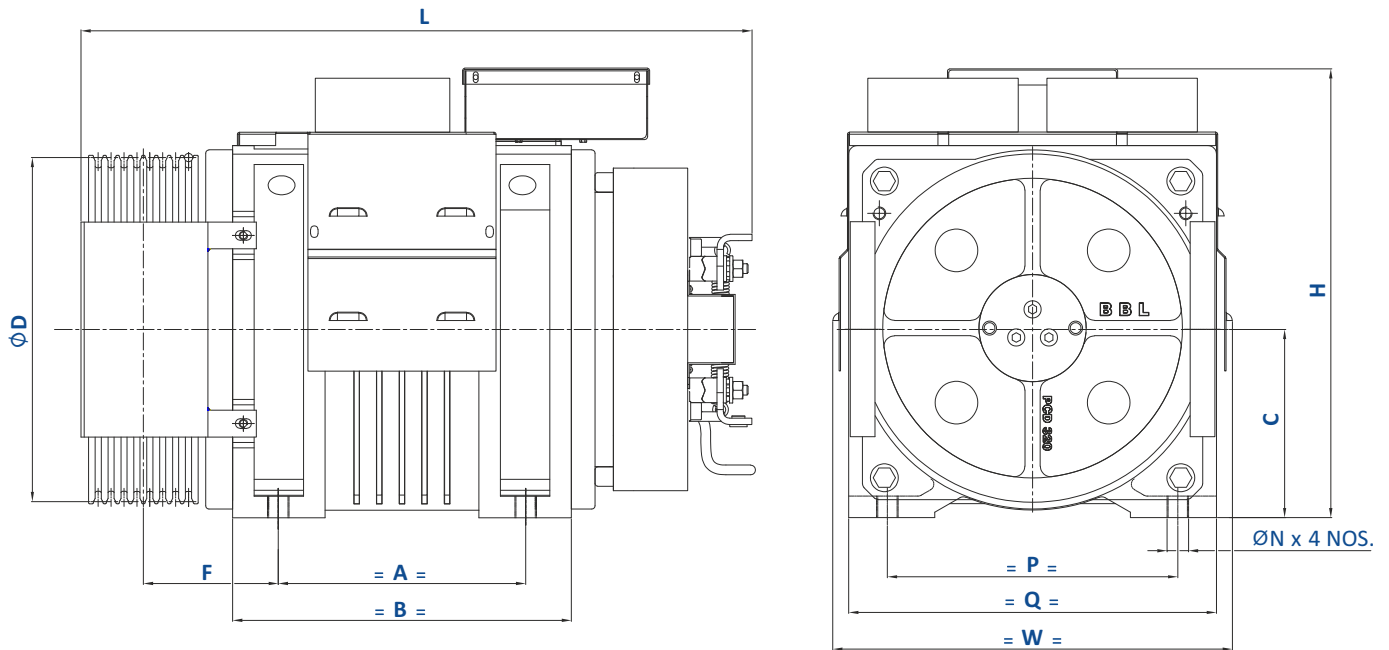
GSH 18 TECHNICAL SPECIFICATIONS

Model	GSH 18-320-100	GSH 18-320-125	GSH 18-320-150	GSH 18-320-175	GSH 18-320-200
Duty Load (kg)	1224	1224	1224	1224	1224
Passenger Capacity	18	18	18	18	18
Speed upto (m/s)	1	1.25	1.5	1.75	2.0
Sheave Diameter (mm)	320	320	320	320	320
Rope Diameter (mm)	8	8	8	8	8
No. of Ropes	8	8	8	8	8
Roping Ratio	2:1	2:1	2:1	2:1	2:1
RPM	120	150	180	210	240
Rated Frequency (Hz)	18	22.5	27	31.5	36
Rated Torque (Nm)	600	600	600	600	600
Rated Output Power (kW)	7.5	9.42	11.3	13.2	15
Rated Output Power (HP)	10	12.63	15.15	17.70	20.12
Rated Current (Amp)	21	30	31	37	37.5
Rated Voltage (volts)	380	380	380	380	380
Starts/Hour	180	180	180	180	180
Static Load (kg)	3500	3500	3500	3500	3500
Machine weight (kg)	240	240	240	240	240

GSH 20 TO 26 TECHNICAL SPECIFICATIONS

Model	GSH 20-320-100	GSH 20-320-125	GSH 20-320-150	GSH 20-320-175	GSH 20-320-200	GSH 26-320-100	GSH 26-320-150
Duty Load (kg)	1360	1360	1360	1360	1360	1768	1768
Passenger Capacity	20	20	20	20	20	26	26
Speed upto (m/s)	1	1.25	1.5	1.75	2.0	1	1.5
Sheave Diameter (mm)	320	320	320	320	320	320	320
Rope Diameter (mm)	8	8	8	8	8	8	8
No. of Ropes	8	8	8	8	8	10	10
Roping Ratio	2:1	2:1	2:1	2:1	2:1	2:1	2:1
RPM	120	150	180	210	240	120	180
Rated Frequency (Hz)	18	22.5	27	31.5	36	18	27
Rated Torque (Nm)	670	670	670	670	670	900	900
Rated Output Power (kW)	8.42	10.52	12.62	14.73	16.83	11.3	17
Rated Output Power (HP)	11.29	14.11	16.92	19.75	22.57	15.16	22.8
Rated Current (Amp)	23.5	31	31.5	38	38.5	30	39
Rated Voltage (volts)	380	380	380	380	380	380	380
Starts/Hour	180	180	180	180	180	180	180
Static Load (kg)	3500	3500	3500	3500	3500	5000	5000
Machine weight (kg)	260	260	260	260	260	355	410

DIMENSIONS



Model	A	B	C	D	P	Q	F	L	W	H	N
GSH 15-320-100	230	315	175	320	270	340	125.5	630	372	420	M20
GSH 15-320-125											
GSH 15-320-150											
GSH 15-320-175											
GSH 15-320-200											
GSH 16-320-100	230	315	175	320	270	340	125.5	630	372	420	M20
GSH 16-320-125											
GSH 16-320-150											
GSH 16-320-175											
GSH 16-320-200											
GSH 18-320-100	230	315	175	320	270	340	125.5	630	372	420	M20
GSH 18-320-125											
GSH 18-320-150											
GSH 18-320-175											
GSH 18-320-200											
GSH 20-320-100	230	315	175	320	270	340	125.5	665	372	420	M20
GSH 20-320-125											
GSH 20-320-150											
GSH 20-320-175											
GSH 20-320-200											
GSH-26-320-100	365	450	175	320	270	340	140.5	800	360	420	M20
GCH-26-320-150	430	511	200	320	295	380	148.5	880	400	460	22



GreenStarMAX®

GreenStarMAX® extends our range of PMSM gearless solutions to carrying capacities of up to 5000 kg: the right machine for your goods, stretcher and car elevators.

Features

- Outstanding torque
- Capacity up to 3000 kg with 2:1 roping
- Static load up to 6000 kg
- Cantilever design

In Collaboration with Permagsa, Spain

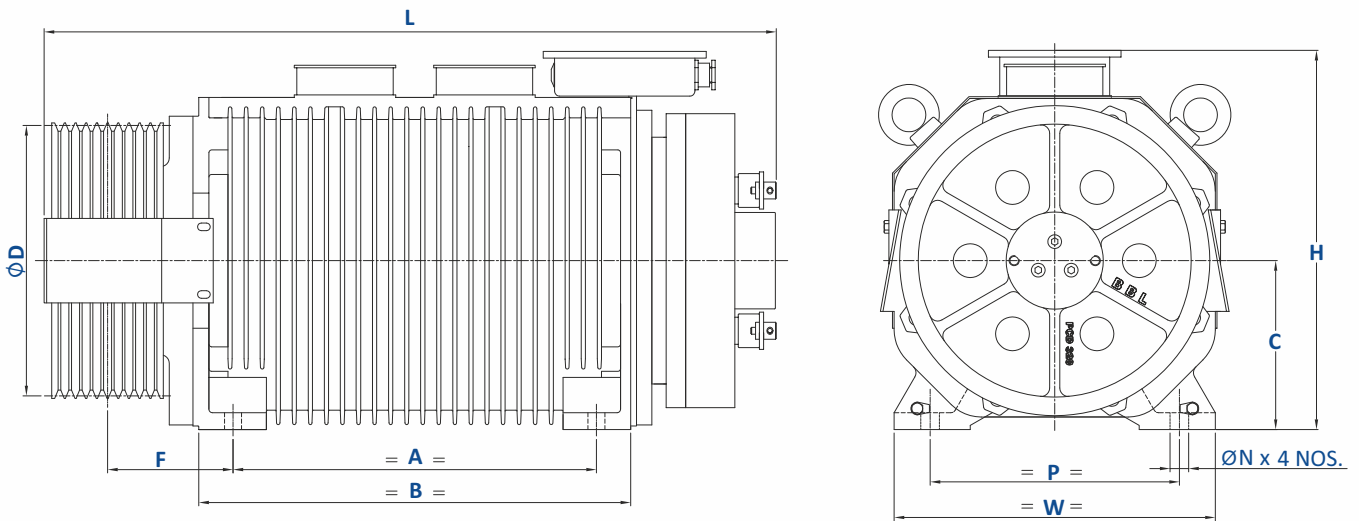
GCH 1.6T TO 2.5T TECHNICAL SPECIFICATIONS

Model	GSH-1.6T-320-100	GCH-2.0T -320-100	GCH-2.0T-320-150	GCH-2.5T-320-100
Duty Load (kg)	1600	2000	2000	2500
Speed (m/s)	1	1	1.5	1.0
Sheave Diameter (mm)	320	320	320	320
Rope Diameter (mm)	8	8	8	8
No. of Ropes	10	10	10	10
Roping Ratio	2:1	2:1	2:1	2:1
RPM	120	120	180	120
Rated Frequency (Hz)	18	18	27	18
Rated Torque (Nm)	800	1000	1000	1200
Rated Output Power (kW)	10.1	12.5	18.84	15.1
Rated Output Power (HP)	13.54	16.75	25.3	20.24
Rated Current (Amp)	25	33.0	52	39.0
Rated Voltage (volts)	380	380	380	380
Starts/Hour	180	180	180	180
Static load (kg)	3500	6000	6000	6000
Machine weight (kg)	340	450	370	450

GCH 3T TO 5T TECHNICAL SPECIFICATIONS

Model	GCH-3T-320-050	GCH-3T-320-100	GCH-4T-320-100	GCH-5T-320-100
Duty Load (kg)	3000	3000	4000	5000
Speed (m/s)	0.5	1	1	1
Sheave Diameter (mm)	320	320	320	320
Rope Diameter (mm)	8	8	8	8
No. of Ropes	12	12	10	12
Roping Ratio	2:1	2:1	4:1	4:1
RPM	60	120	240	240
Rated Frequency (Hz)	9	18	36	36
Rated Torque (Nm)	1500	1500	1062	1350
Rated Output Power (kW)	9.5	19	26.68	34
Rated Output Power (HP)	12.7	25.5	35.8	45.6
Rated Current (Amp)	34	50	60	100
Rated Voltage (volts)	380	380	380	380
Starts/Hour	180	180	180	180
Static load (kg)	6000	6000	6000	6000
Machine weight (kg)	500	500	450	780

DIMENSIONS



Model	A	B	C	D	P	F	L	W	H	N
GCH-2.0T -320-100	430	511	200	320	295	148.5	880	380	460	M20
GCH-2.0T-320-150										
GCH-2.5T -320-100										
GCH-3T-320-050			179	1000	465					
GCH-3T-320-100										
GCH-4T-320-100	365	450	200	320	295	148.5	870	400	460	
GSH-1.6T-320-100			175	320	270	140.5	780	350	420	



GreenStarmini®

GreenStarmini® is a gearless PMSM ideal for home elevators i.e. bungalows and penthouses. It is compact and facilitates elevators with a minimum of space and civil work.

In Collaboration with Permagsa, Spain

Features

Lifts loads up to 544 kg and travels up to 15 meters

Operates on single-phase 230V drive domestic power supply

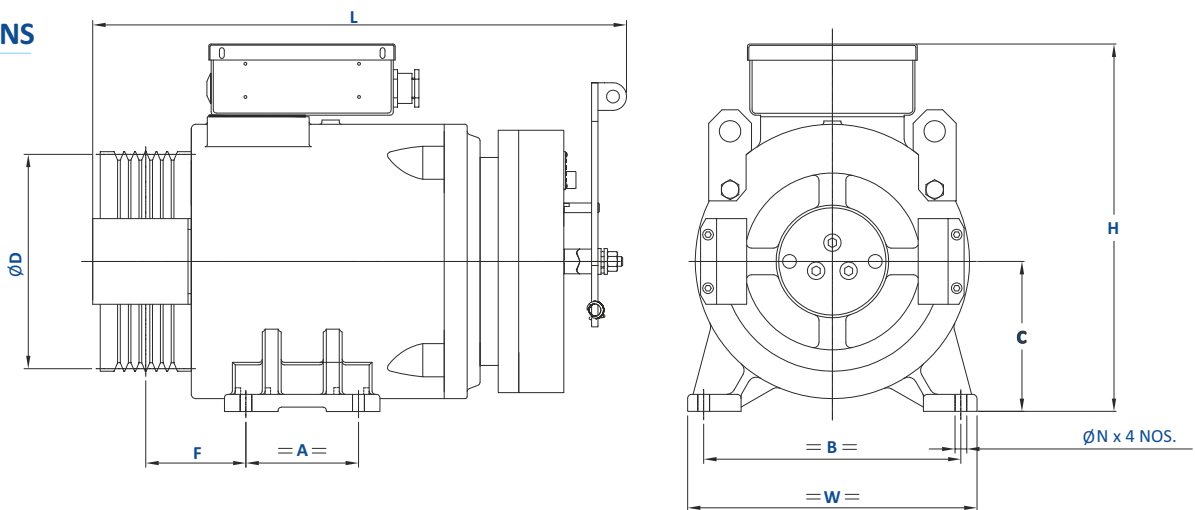
Manual release for brake provided

Insulation class F with thermistor for thermal protection

TECHNICAL SPECIFICATIONS

Model	GH-04-200-032	GC-06-200-050		GC-06-320-063	GC-08-200-050
Duty Load (kg)	300	408		408	544
Passenger Capacity	4	6		6	8
Speed upto (m/s)	0.32	0.5		0.63	0.5
Sheave Diameter (mm)	200	200		320	200
Rope Diameter (mm)	6	6.5	8	8	8
No. of Ropes	4	4	4	4	4
Roping Ratio	2:1	2:1		2:1	2:1
RPM	60	96		75	96
Rated Frequency (Hz)	6	9.6		7.5	9.6
Rated Torque (Nm)	100	135		215	180
Rated Output Power (kW)	0.62	1.35		1.68	1.80
Rated Output Power (HP)	0.84	1.81		2.25	2.39
Rated Current (Amp)	4	7		11.3	11
Rated Voltage (Volts)	230	230		230	230
Starts/Hour	120	120		120	120
Static Load (kg)	1300	1300		1300	1300
Machine weight (kg)	90	110		128	125

DIMENSIONS



Model	A	B	C	D	F	L	W	H	N
GH-04-200-032	105	240	140	200	77	455	270	329	11
GC-06-200-050	105	240	140	200	94	500	270	345	11
GC-06-320-063	165	220	170	320	97	525	254	380	18
GC-08-200-050	165	220	142	200	111.5	530	254	352	18



GreenStar® 1:1

GC 06-200-100 TECHNICAL SPECIFICATIONS

Model	GC-06-200-100
Duty Load (kg)	408
Passenger Capacity	6
Speed upto (m/s)	1
Sheave Diameter (mm)	200
Rope Diameter (mm)	8
No. of Ropes	6
Roping Ratio	1:1
RPM	96
Rated Frequency (Hz)	9.6
Rated Torque (Nm)	250
Rated Output Power (kW)	2.51
Rated Output Power (HP)	3.35
Rated Current (Amp)	7.6
Rated Voltage (Volts)	380
Starts/Hour	180
Static Load (kg)	2000
Machine weight (kg)	165

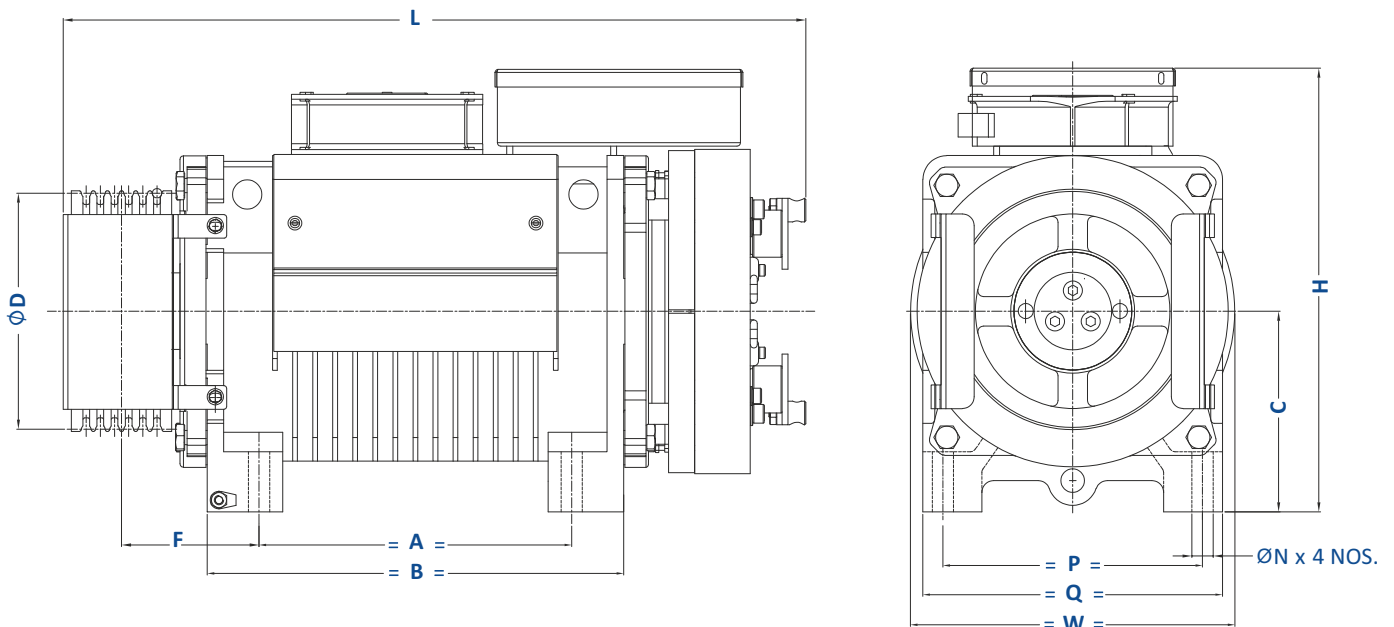
GreenStar® 1:1 is the latest addition to our range of next-gen gearless elevator machines, powered by permanent magnet synchronous motors. This enhanced machine within the GreenStar® range, offers direct modernisation solutions to replace geared machine in 1:1 roping, with a smooth and comfortable ride for passengers.

In Collaboration with Permagsa, Spain

Features

- Gearless solutions to replace geared machines
- Simplex in Roping system (1:1)
- Energy-efficient
- Insulation class F with thermistor for thermal protection
- Quieter, smoother and compact machine, with better performance and longer life
- Used for Cantilever lifts with less space

DIMENSIONS



Model	A	B	C	D	P	Q	F	L	W	H	N
GC-06-200-100	265	353	170	200	220	254	116	640	275	380	18



GreenStarBELT®

This range of GreenStar® machines is especially suited for elevators with belts that ensure a smooth ride and minimal noise. They can be used for home elevators as well as commercial elevators.

Features

Deploys Polyurethane coated flat belts for suspension

Manual release for brake provided

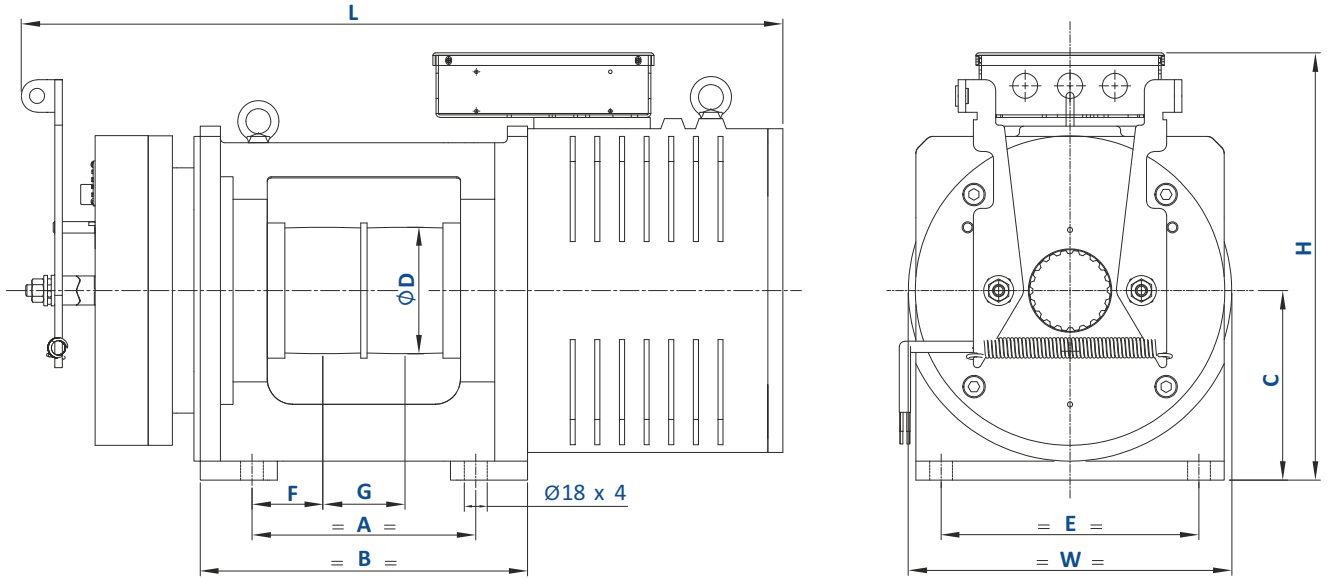
Insulation class F with thermistors for thermal protection

In Collaboration with Permagsa, Spain

TECHNICAL SPECIFICATIONS

Model	GBN-06-100-100	GBN-08-100-100	GBN-10-100-100	GBN-13-100-100	GBN-16-100-100	GBN-20-100-100
Duty Load (kg)	408	544	680	884	1088	1360
Passenger Capacity	6	8	10	13	16	20
Speed upto (m/s)	1	1	1	1	1	1
Sheave Diameter (mm)	100	100	100	100	100	100
Belt width (mm)	30	30	30	30	30	30
No. of Belt grooves	2	3	3	4	4	5
Roping Ratio	2:1	2:1	2:1	2:1	2:1	2:1
RPM	384	384	384	384	384	384
Rated frequency (Hz)	38.4	38.4	38.4	38.4	38.4	38.4
Rated Torque (Nm)	72	92	115	145	175	220
Rated Output Power (kW)	2.90	3.70	4.62	5.83	7.04	8.84
Rated Output Power (HP)	3.90	4.96	6.20	7.82	9.44	11.86
Rated Current (Amp)	6.0	8	10	13	16	24
Rated Voltage (volts)	380	380	380	380	380	380
Starts / Hour	180	180	180	180	180	180
Static Load (kg)	2500	2500	2500	3000	3000	3500
Machine weight (kg)	140	140	148	170	170	180

DIMENSIONS



Model	A	B	C	D	E	F	G	L	W	H
GBN-06-100-100	177	259	150	100	204	56	65	600	256	338
GBN-08-100-100	242	324	150	100	204	56	65	665	256	338
GBN-10-100-100	242	324	150	100	204	56	65	665	256	338
GBN-13-100-100	307	389	150	100	204	56	65	820	256	338
GBN-16-100-100	307	389	150	100	204	56	65	820	256	338
GBN-20-100-100	372	454	150	100	204	56	65	950	256	345

ACCESSORIES

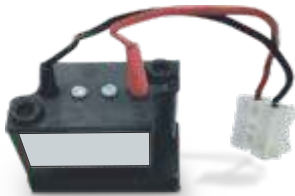
Component	Model	GBN-06-100-100	GBN-08-100-100	GBN-10-100-100	GBN-13-100-100	GBN-16-100-100	GBN-20-100-100
Belt Suspension (With Clip)		4	6	6	8	8	10
Belt Breaking Detect Sensor		1	1	1	1	1	1
Belt Sensor Clamp - 6 Pin		2	3	3	4	4	5
Belt Sensor Clamp with Connector Wire-7pin		2	3	3	4	4	5
Belt Diverter Sheave		3	3	3	3	3	3



Belt Suspension with Belt Clip



Belt Diverter Sheave



Belt Sensor Clamp with Connector Wire-7pin



Belt Sensor Clamp - 6 Pin

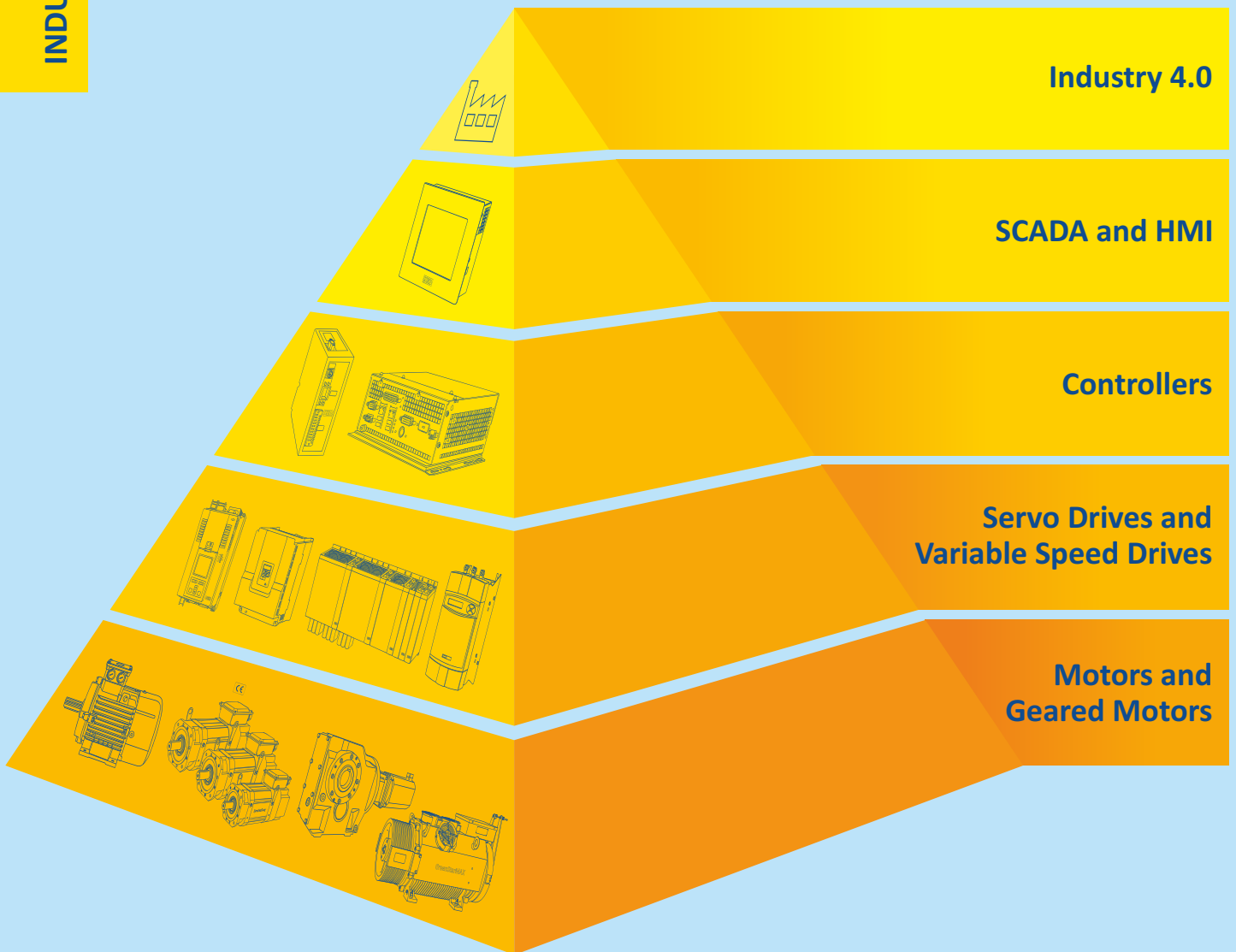


Belt Breaking Detect Sensor

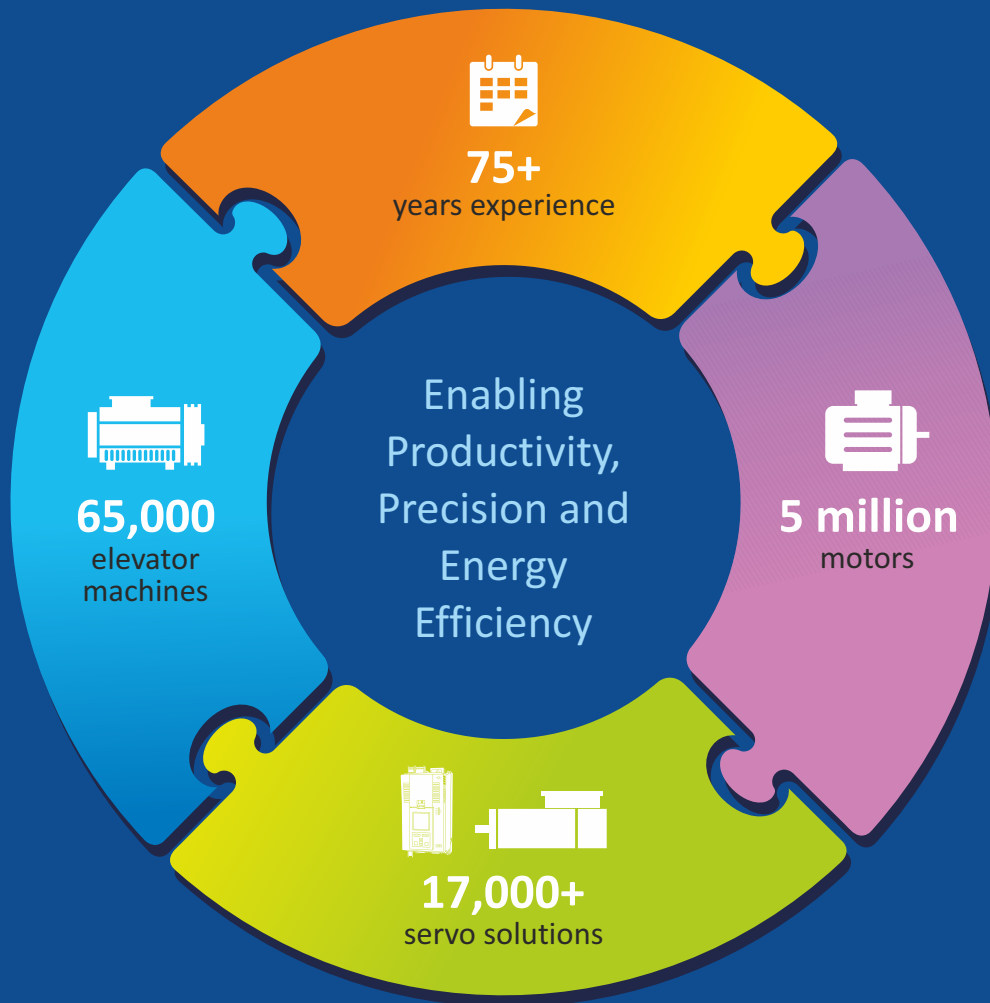
Notes:

- Wrap Angle- Minimum 175 degrees • Shaft efficiency - > 85% • No. of poles: GC, GH, GS & GB series = 12, GSH & GCH series = 18
- Duty cycle - S3 40% • Brake Voltage - 110 VDC direct (Rectifier not required)
- Assumed Car weight - 1.2 X duty load • Compensating Chain necessary for travel more than 20m
- Encoder - SinCos, PPR - 2048, Voltage - 5 VDC
- Please contact Bharat Bijlee representative for using these machines with different roping combinations than specified.
- Insulation class: F ; IP:21
- Product Development is a continuous process and technical information herein is subject to change.

ENABLING PRODUCTIVITY, PRECISION & ENERGY EFFICIENCY



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