

# VARTA® THE ORIGINAL.

Clarios is a world leader in advanced energy storage solutions. We partner with our customers to meet increasing market demands for smarter applications on a global scale. Our 16,000 employees develop, manufacture and distribute a portfolio of evolving battery technologies for virtually every type of vehicle. Our technologies deliver uniquely sustainable, next-generation performance while bringing reliability, safety and comfort to lives every day. Adding value at every stage in the supply chain, we contribute to the progress of the communities we serve and the planet we all share.

Learn more about Clarios at [www.clarios.com](http://www.clarios.com)

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It all starts with  **VARTA®**

 CLARIOS

[www.varta-automotive.com](http://www.varta-automotive.com)

It all starts with  **VARTA®**

 CLARIOS



The importance of original spare parts.

# 8 OUT OF 10 NEWLY MANUFACTURED AGM CARS ARE FITTED WITH VARTA®. BUT WHY?

VARTA batteries stand for superior quality. That's why car manufacturers consider them the best fit for their cars. But besides the quality aspects, there are other important reasons for making VARTA batteries the first choice.



Inspection at the battery factory in Hanover.

There are two things car manufacturers look into before deciding which 3rd-party component they build into their cars. The first is performance, and the second is a next-to-zero fail rate.

It's these two factors where the VARTA Silver Dynamic AGM outperforms.

But the success didn't come overnight. Starting in 2002 on a broad scale, we have put in place more than 100 process and product parameters and variables which are being inspected and monitored during the production of the AGM batteries. This has made us the No. 1 supplier for the automotive industry.

One example for highest production stability is our patented PowerFrame® grid. PowerFrame® ensures fast recharge, highest corrosion resistance and reliable starting power in any vehicle application and weather condition.

So rest assured when you replace your battery with a VARTA battery.

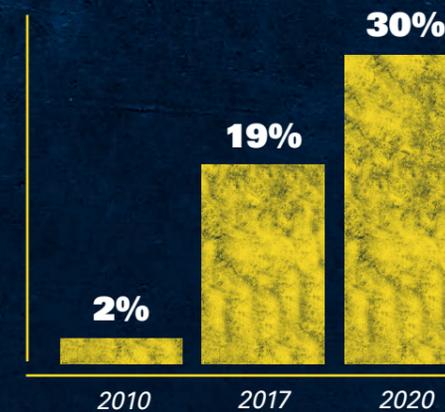
Let's talk about modern batteries.

# THE WORLD OF BATTERIES HAS CHANGED. THIS IS WHAT YOU NEED TO KNOW.

The introduction of the start-stop system has driven a major change in battery technology. The traditional lead-acid "starter" battery is not suitable for this type of application and, therefore, cannot be used. Instead, it requires a battery that can deliver the starting power of a traditional automotive battery but also delivers the highest possible amount of cycle capacity. As a result, the Absorbent Glass Mat (AGM) battery was developed.

# START-STOP IS HERE. ARE YOU PREPARED?

By the time you read this, more than 90% of all newly manufactured cars will have start-stop technology built in. And in a few years, more than 30% of all cars entering a workshop will be equipped with a start-stop system.



In a few years, more than 30% of all cars arriving at a workshop will come with start-stop technology.

\*Workshops in Europe

# CUSTOMERS HAVE DEMANDS. CARS HAVE DEMANDS. WE HAVE SOLUTIONS.

When it comes to battery power, cars can be pretty demanding. Even in older cars there are huge differences when it comes to energy consumption: the number of electronic devices, the climate

conditions or what sort of traffic drivers typically experience e.g. around town vs. highway. That's why there's a range of batteries according to what consumers need.

	Start-Stop	Cold Cranking Amps	Consumers	Cycle life compared to conventional batteries <sup>#</sup>	Temperatures	
<b>START-STOP</b> AGM must be replaced with AGM. EFB can be replaced with EFB or AGM.				<b>3x</b>		<b>Start-Stop applications batteries</b>  <b>Silver Dynamic AGM</b> All start-stop applications + modern cars with superior power needs.
				<b>2x</b>		 <b>Silver Dynamic EFB</b> Cars with entry-level start-stop power needs.
<b>CONVENTIONAL</b> Batteries should always be replaced with the equivalent battery to meet the car's needs. You need more power because of extreme climate conditions or more electronic devices? Decide for best performance with a VARTA® AGM or upgrade within our SLI product range.						<b>Conventional batteries/ Non-Start-Stop</b>  <b>Blue Dynamic</b> Cars with average power needs.
						 <b>Black Dynamic</b> Cars with lower power needs.

<sup>#</sup>When used on start-stop vehicles.

## Beware of the dangers of replacing AGM or EFB with a conventional battery.

Serious performance and safety risks might occur when a conventional battery is fitted to a start-stop vehicle. This applies even if the start-stop function will be deactivated by the driver.



Loss of warranty



Failure of comfort functions



Start-Stop function will not work properly



Acid spillage can cause damage to other engine parts



Overcharging may cause the battery to become hot and rupture



For medium energy needs.

# VARTA® SLI RANGE: THE RIGHT CHOICE FOR NON-START-STOP SYSTEMS.

Conventional batteries, i.e. flooded lead-acid batteries, are the most common battery type. This technology is often referred to as SLI, named after what used to be the battery's main purpose in a car: Starting, Lighting, Ignition.

All VARTA SLI batteries come with VARTA quality.

Battery	Applications	Consumers	Cold Cranking Amps
Blue Dynamic	All premium conventional vehicles		
Black Dynamic	Standard conventional vehicles		

For superior power needs.

# VARTA® SILVER DYNAMIC EFB: THE SOLID CHOICE FOR ENTRY LEVEL START-STOP SYSTEMS.

Entry level start-stop systems are usually equipped with an EFB (Enhanced Flooded Battery), suitable for vehicles without regenerative braking. It's outperformed only by the Silver Dynamic AGM to increase fuel savings, reduce emissions and increase the reliability of the vehicle's comfort functions.

Its start-stop legacy makes it a powerful conventional replacement.

The VARTA Silver Dynamic EFB fits vehicles with higher than normal energy demands. So if you're looking for a battery with extended cycle life compared to a conventional battery, the VARTA Silver Dynamic EFB is the right choice.

- Engineered to the highest European standards
- Ready for entry level start-stop systems
- 2x the cycle life compared to conventional batteries#

#When used on start-stop vehicles.



Ready for **entry level start-stop systems.**



**Patented PowerFrame® grid** for reliable starting power, fast recharge and corrosion resistance.





The start-stop benchmark.

# VARTA® SILVER DYNAMIC AGM: UNPARALLELED PERFORMANCE FOR START-STOP SYSTEMS.

Recommend VARTA Silver Dynamic AGM to power the most demanding vehicles - the top performing choice for start-stop vehicles.

## 8 OUT OF 10 NEWLY MANUFACTURED CARS IN EUROPE ARE FITTED WITH A VARTA® SILVER DYNAMIC AGM.

We consider the VARTA Silver Dynamic AGM battery as the mandatory replacement for any vehicle equipped with an AGM battery (remember, an AGM battery must always be replaced with an AGM).

You'll find a VARTA Silver Dynamic AGM in 80% of newly manufactured AGM fitted start-stop cars in Europe, underlining VARTA's leadership as the trusted OE supplier for the vast majority of car manufacturers.



**Suitable for all start-stop vehicles** – kicks in earlier, works harder, lasts longer (part of OE design ensuring highest fuel savings in start-stop systems).



**VARTA AGM (Absorbent Glass Mat)** technology with premium performance for highly equipped cars.



**Patented PowerFrame® grid** for reliable starting power, fast recharge and corrosion resistance.

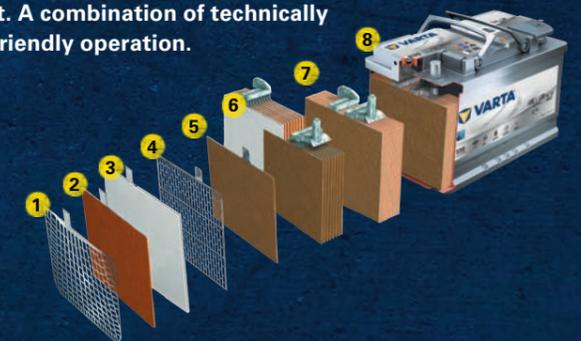
- ▶ **3x the cycle life compared to conventional batteries#**
- ▶ **For vehicles with the highest energy demands due to tougher driving schedules, cold winters, hot summers or multiple accessories & equipment**
- ▶ **Engineered to the highest European standards**

#When used on start-stop vehicles.

## Battery technology trusted by car manufacturers

The VARTA Silver Dynamic AGM is built to perform – and built to last. A combination of technically advanced components enables powerful, safe and environmentally friendly operation.

1. Positive patented PowerFrame®
2. Positive plate with special mass recipe
3. Positive plate with OE glass mat separator
4. Negative patented PowerFrame®
5. Negative plate with special mass recipe
6. Positive and negative plate group
7. Plate set
8. Reinforced patented container



Type	Product Category	Group Size	Product Number	Reference	20Hr (Ah)	CCA (A)	Dimensions L x W x H (mm)	
Asian Battery Types (JIS)	Black Dynamic SLI	B20	46B20L	NS40ZL	35	315	196 x 128 x 225	
		B20	46B20R	NS40Z	35	315	196 x 128 x 225	
		B24	55B24L	NS60L	45	335	237 x 128 x 225	
		B24	55B24R	NS60	45	335	237 x 128 x 225	
		B24	55B24LS	NS60LS	45	335	237 x 128 x 225	
		B24	55B24RS	NS60S	45	335	237 x 128 x 225	
		D23	55D23L		55	550	229 x 172 x 225	
		D23	75D23L		60	530	229 x 172 x 225	
		D26	55D26L	NS70L	60	475	260 x 172 x 225	
		D26	55D26R	NS70	60	475	260 x 172 x 225	
		D26	75D26L	NS70L	65	550	260 x 172 x 225	
		D26	75D26R	NS70	65	550	260 x 172 x 225	
		D31	75D31L	N70ZL	70	530	305 x 172 x 225	
		D31	75D31R	N70Z	70	530	305 x 172 x 225	
		D31	95D31L	NX120-7L	90	680	305 x 172 x 225	
		D31	95D31R	NX120-7	90	680	305 x 172 x 225	
		Blue Dynamic SLI	B19	50B19L		40	370	187 x 127 x 225
			B19	50B19R		40	370	187 x 127 x 225
	B24		65B24L	NX100-S6L	50	390	237 x 128 x 225	
	B24		65B24R	NX100-S6	50	390	237 x 128 x 225	
	B24		65B24LS	NX100-S6LS	50	390	237 x 128 x 225	
	B24		65B24RS	NX100-S6S	50	390	237 x 128 x 225	
	D23		85D23L		70	600	229 x 172 x 225	
	D23		85D23R		70	600	229 x 172 x 225	
	D26		80D26L	NX110-5L	75	630	260 x 172 x 225	
	D26		80D26R	NX110-5	75	630	260 x 172 x 225	
	D31		120D31L		90	720	305 x 172 x 225	
	D31		120D31R		90	720	305 x 172 x 225	
	Silver Dynamic EFB		B20	M-42(60B20L)		40	400	196 x 128 x 225
		B20	M-42R(60B20R)		40	400	196 x 128 x 225	
		B24	N-55(80B24L)		55	500	237 x 128 x 225	
		B24	N-55R(80B24R)		55	500	237 x 128 x 225	
		D23	Q-85(95D23L)		65	620	229 x 172 x 225	
		D23	Q-85(115D23L)		70	660	229 x 172 x 225	
		D23	Q-85R(115D23R)		70	660	229 x 172 x 225	
		D26	S-95(130D26L)		75	720	260 x 172 x 225	
		D26	S-95R(130D26R)		75	720	260 x 172 x 225	
		D31	T-110(145D31L)		90	820	305 x 172 x 225	
		D31	T-110R(145D31R)		90	820	305 x 172 x 225	

Type	Product Category	Group Size	Product Number	Reference	20Hr (Ah)	CCA (A)	Dimensions L x W x H (mm)
Asian Battery Types (JIS)	Silver Dynamic AGM	B20	34B20R		35	340	196 x 128 x 225
		B24	46B24R		45	370	237 x 128 x 225
	Blue Promotive SLI For Commercial Vehicles	GP31	31-750		100	750	330 x 173 x 239
		GP31	31-750T		100	750	330 x 173 x 239
		E41	130E41L	N100	100	750	408 x 174 x 234
		E41	130E41R	N100R	100	750	408 x 174 x 234
		F51	150F51	N120	120	800	505 x 182 x 234
		G51	180G51L	N150	150	950	508 x 215 x 234
		G51	180G51R	N150R	150	950	508 x 215 x 234
		H52	220H52L	N200	200	1000	512 x 277 x 241
		H52	220H52R	N200R	200	1000	512 x 277 x 241

Type	Product Category	Group Size	Product Number	Reference	20Hr (Ah)	CCA (A)	Dimensions L x W x H (mm)	
European Battery Types (EN)	Blue Dynamic SLI	LN0	54418	DIN44L	44	390	174 x 174 x 188	
		LBN1	54313	DIN45L	43	430	206 x 174 x 174	
		LN2	55530	DIN55L	55	525	241 x 174 x 188	
		LN2	55548	DIN55R	55	525	241 x 174 x 188	
		LN2	56219	DIN62L	62	570	241 x 174 x 188	
		LBN2	56090	DIN60L	60	540	241 x 174 x 174	
		LN3	56618	DIN66L	66	500	277 x 174 x 188	
		LBN3	56530	DIN65L	65	550	277 x 174 x 174	
		LBN3	57539	DIN75L	75	590	277 x 174 x 174	
		LN4	59043	DIN90L	90	800	314 x 174 x 188	
		LBN4	58039	DIN80L	80	730	314 x 174 x 174	
		LN5	60038	DIN100L	100	650	352 x 174 x 188	
		LN5	60044	DIN100L	100	760	352 x 174 x 188	
		LN6	61038	DIN110L	110	900	393 x 174 x 188	
		Silver Dynamic EFB	LN2	LN2 EFB		60	560	241 x 174 x 188
			LN3	LN3 EFB		70	720	277 x 174 x 188
		Silver Dynamic AGM	LN1	550901052		50	520	206 x 174 x 188
			LN2	560901068		60	680	241 x 174 x 188
	LN3		570901076		70	760	277 x 174 x 188	
	LN4		580901080		80	800	314 x 174 x 188	
	LN5		595901085		95	850	352 x 174 x 188	
	LN6		605901095		105	950	393 x 174 x 188	