Cordless operation

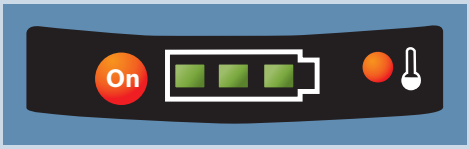
Contents

Impressive technology – lithium-ion batteries.

- **No memory effect:**
  convenient charging, no matter whether the battery is ¾ or ½ empty.
- **Low self-discharge:**
  after 30 days the lithium-ion battery still has 96 % of the specified rated capacity, whereas a NiCd/NiMH battery loses approximately 25 % of its rated capacity.
- **ECP (Electronic Cell Protection) in cordless tools:**
  The cells in the battery are monitored electronically. The power output of the tool is automatically reduced in the following situations:

  – Overload
  – Total discharge
  – Overheating

  All three can damage the cell and significantly affect the service life of the battery.
- **HCH (Heat Conductive Housing) and cooling fins:**
  allow heat to escape from inside the battery effectively.
  The Bosch Li-ion battery cools down 45 % faster than conventional battery models.
- **Protective ribs and rubber caps fitted on the sides:**
  protect the battery against external impacts.
- **Charge level indicator:**
  tells the user how much more energy is available.



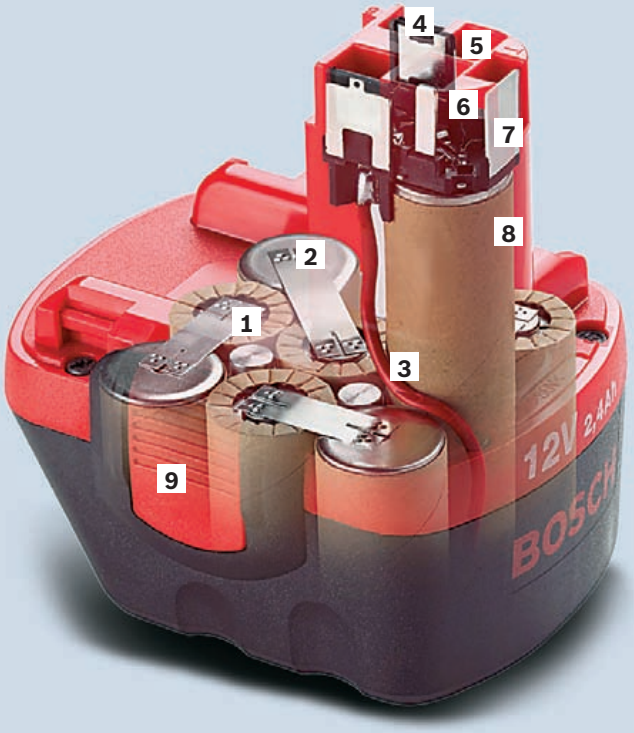
When the “On” button is pressed, the LEDs light up for 5 seconds to show how much charge is left in the battery.

Red LED:	If the red LED lights up, the battery is too hot or too cold to be charged.
Green LED:	Displays the charging state. Permanently lit LEDs indicate the following: 3 LEDs: Charging state between 100 and 66% 2 LEDs: Charging state between 66 and 33% 1 LED: Charging state between 33 and 5% 1 LED flashing: Charging state under 5%
No LED lit:	Battery is defective.
During charging:	All 3 LEDs flash
Charging completed:	All LEDs light up for 15 minutes

Heavy Duty battery packs

The new Heavy Duty battery packs:
The more efficient the battery, the longer the service life. To increase the service life, measures must be taken to prevent the battery pack heating up.

This is achieved by special cooling rods 1 which distribute heat evenly and therefore protect the battery cells. In addition, cell connectors made of nickel 2 and cables 3 with a double cross-section ensure extremely high levels of conductivity, which considerably reduces the build-up of heat.



4 Blade shaped positive/negative contacts give double contact for high power transmission of up to 80 amperes and prevent transmission resistance. The silver-plated contacts ensure long-lasting high conductivity with low rates of wear.

5 Option contacts allow data to be transmitted between the battery and the power tool, to provide information about the charge level and lifespan.

6 Coding contacts transmit data between the battery and battery charger so that the charger can identify the battery type and control the number of battery charges and discharges, to optimise them.

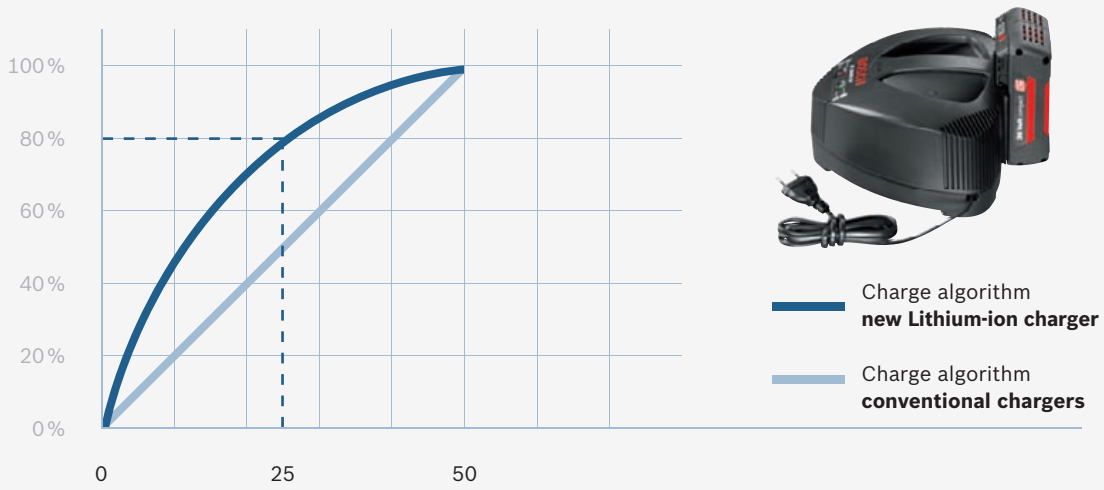
7 NTC contacts (hot-wire contacts) transfer data to the charger, which it then uses to monitor the temperature of the battery during the charging process. When a threshold is reached (approximately 45 °C), the charge current is interrupted and the charger switches to trickle charge.

8 Bosch flat-shaped batteries with an APT (Advanced Power Terminals) plug end guarantee the right battery is always used with the right power tool or battery charger. The integrated mechanical coding prevents incorrect insertion and incorrect poling.

9 Patented locking system for Bosch O-Pack batteries: secures the battery pack in the power tool and makes it easier to use.

Lithium-ion **chargers.**

The new charger with turbo charging has an asymptotic charge algorithm, which recharges the battery to 80% of full charge in 25 minutes. As Lithium-ion batteries have no memory effect, the battery can be recharged at any time, no matter what its charge status.



As the battery heats up to 70° C whilst in use, the air cooling system built into the charger blows fresh air through it. This significantly reduces charging time because the battery is only charged at temperatures between 0 and 45 °C, to optimise its service life.

Overview of Bosch battery packs and chargers

Li-Ion

Cell technology	Battery voltage	3.6 V	10.8 V	14.4 V	18.0 V	36.0 V			
	Battery capacity	**Battery packs (Part number 2 607...)**							
Li-Ion	1.3 Ah	336 242							
			336 014						
				336 038	336 040				
				336 150	336 170				
						336 002			
	2.6 Ah			336 078	336 092				
						336 108			

NiCd

Cell technology	Battery voltage	3.6 V	7.2 V	9.6 V	12.0 V	14.4 V	18.0 V	24.0 V	
	Battery capacity	**Battery packs (Part number 2 607...)**							
NiCd	1.2 Ah	335 062							
		335 484							
		335 790							
				335 524	335 526	335 528			
	1.5 Ah		[1] 300 001	[1] 300 002	[1] 335 021				
			335 033	335 037	335 055	335 160			
				335 540	335 542	335 534	335 536	335 538	
	1.7 Ah							335 082	
	2.0 Ah		[1]	335 152	335 151	335 210			
			335 175	335 260	335 262	335 264	335 266		
	2.4 Ah			335 674	335 676	335 678	335 680	335 448	
	3.0 Ah							335 216	

NiMH

NiMH	2.6 Ah			335 230	335 250	335 252			
				335 682	335 684	335 686	335 688	335 562	
	3.0 Ah				335 692	335 694	335 696	335 510	

[1] Charging only possible with intermediate adapter.

	AL 1115 CV 225 514	AL 1130 CV 225 134	AL 1820 CV 225 424	AL 1860 CV 225 322	AL 2204 CV 225 274	AL 2215 CV 225 472	AL 3640 CV 225 100	Chargers (Part number 2 607...)
	Charge times (min)							Battery capacity
	55							1.3 Ah
	55	30						
					180	55		
			45	24				
							45	
			80	30				2.6 Ah
							68	

	224 902	224 790	AL 2404 225 184	AL 2422 DC 224 410	AL 2425 DV 224 426	AL 2450 DV 225 028	AL 2498 FC 224 484	Chargers (Part number 2 607...)
	Charge times (min)[2]							Battery capacity
	240							1.2 Ah
		300						
			200	38	36	15	9	
			250	47	44	19	12	1.5 Ah
			283	53	50	22	15	1.7 Ah
			333	62	58	27	18	2.0 Ah
			400	74	70	30	21	2.4 Ah
			500	93	87	38	26	3.0 Ah
			433	80	76	33	23	2.6 Ah
			500	93	90	38	26	3.0 Ah

[2] The charge times given in minutes are approximate specifications, measured at a room temperature of 20°C/68°F. The battery's charging state, age and temperature all influence the charge times.