

Technical Information Sheet no. 5

# BERU

CONNECTOR SYSTEMS FOR  
IGNITION CIRCUITS



## A few words of introduction

40,000 volts, temperatures up to 250 °C, vibration, salt water, road dust, cleaning agents ... these are just a few of the permanent stresses to which connectors and ignition cables are subjected day-in, day-out. Ignition lead sets bearing the Beru name are therefore constructed to be totally waterproof, resistant to corrosion, stress free and as a special feature, a reliable contact system. Beru ignition lead sets are manufactured to original equipment quality and, where necessary, suppressed in accordance with the VDE standard.

This brochure explains how you can repair or totally replace ignition lead sets reliably and professionally with the help of the Beru ZAZ 3 workshop range. The range enables workshops for the very first time to employ the same attachment techniques used as standard in mass manufacture.

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## PowerCable

### Inner silicon insulation (core)

Optimum insulation, prevents power loss, highly flexible

### High-grade steel resistor wire

For optimum high-voltage transmission and consistent resistance values

**Ferro-magnetic silicon** for effective and reliable suppression

### Textile braiding

Strengthens the ignition cable, guarantees high tensile strength, increasing the service life.

### High temperature resistant, durable silicon sheath

(-60 °C to +250 °C)  
Provides effective protection against oil, petrol, salt water, acid, heat and other external influences.

## Reliability comes from updating with the right ignition cables

European automobile manufacturers use three different types of OE ignition cable systems in their vehicles: either resistance ignition circuits with wire resistance in the cable, with carbon resistance in the cable or ignition circuits with a copper core on which the suppression resistance is integrated in the connectors.

Up to just a few years ago bakelite connectors and PVC ignition cables were still being installed in many vehicles; the spark plug connectors used in these systems had no protection whatsoever against water ingress and dust/dirt. So if the system requires updating we recommend ignition cables and connectors from Beru for your customers: for copper ignition cables, Beru CopperCable, for resistor ignition cables, Beru PowerCable. These quality cables guarantee precision ignition sequence, optimum engine performance and low fuel consumption - to the same OE supplier quality.

The following pages give you information and tips on repairing and assembling together complete Power and CopperCable systems.

## Modern connection materials from Beru offer many advantages

	Previously	Today
Ignition cables	PVC	Silicon
Safe voltage	15,000 V	40,000 V
Temperature resistance (max.)	80 °C	250 °C
Protection against water and moisture	limited	100%

## CopperCable

### Original spark plug contact

Fits M4 or SAE spark plug

### Precision co-ordinated loss resistance

designed to suit the ignition system, conforms to VDE standard

### Silicon safety tube

for water and dustproof fit, highly voltage resistant

### Silicon safety cap

highly voltage resistant

### Metal screening on Audi, Mercedes, Seat, VW

extra thermal protection and radio interference suppression

### Original ignition cable attachments

- BMW locating sleeve (non-detachable)
- Mercedes screw connection (M3)
- Audi, Seat, VW saw-tooth sleeve

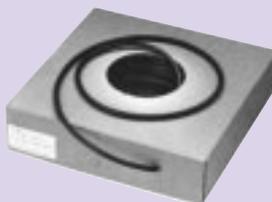
**Silicon ignition cable**, talcum-coated glass fibre reinforced, copper core, high voltage resistant, highly flexible, highly temperature resistant

### Epoxy resin casing

temperature resistant, voltage-proof

### Ignition distributor contact

Ignition cable contact options			
Description	Application	Order no.	Packaging unit
 Locating sleeves	primarily Audi VW BMW	0 901 300 001	1 box = 100 units
 Saw-tooth sleeves	primarily Audi VW Seat	0 901 300 002	100 units
 M3 threaded sleeves	primarily Mercedes-Benz Porsche	0 901 300 003	100 units
 SAE ignition cable sleeves	primarily Ford Opel Fiat	0 901 300 004	100 units
 SAE 90° ignition cable sleeves	primarily Ford Opel	0 901 300 007	100 units
 Ignition distributor sleeves	Universal for DIN connector pin	0 901 300 005	100 units

Copper ignition cable	Description	Order no.	Packaging unit
	Silicon ignition cable 7 mm dia. black	0 300 800 023	25 m roll
	Silicon ignition cable 7 mm dia. red	0300 800 021	25 m roll
	PVC ignition cable 7 mm dia. black	0 300 800 002	50 m packed in boxes
Resistance cable (5,64 kΩ/m)	Description	Order no.	Packaging unit
	PowerCable silicon 7 mm blue	0 300 800 030	25 m roll (inklusive of 100 contact needles 0 901 300 010)

Category	Temperature resistant at		Insulation
	Thermal ageing (3000 h)	Thermal overload (1 h)	
B	105 °C	120 °C	PVC
C	120 °C	155 °C	EPP, Hypolon, EPDM
D	155 °C	180 °C	EVA
E	180 °C	220 °C	Silicon
F	220 °C	250 °C	Silicon



## The ZAZ 3 workshop range for quick and reliable ignition cable repairs

The range includes:

- Crimping pliers
- Locking sleeves
- Saw-tooth sleeves
- M3 threaded sleeves
- SAE ignition cable sleeves
- SAE ignition cable sleeves, angled
- Ignition distributor sleeves
- Waterproof mouldings G 1 PK
- Waterproof mouldings GS 7 and GW 10
- Inserting tool
- Detailed instructions for use
- Installation oil

Order No. 0 890 300 003

## Guide: The right “contact” for every vehicle

### What you need:

- The Beru ZAZ 3 workshop range
- Beru ignition cable from the roll
- Beru connectors

### And how it's done:

1. Select the correct connectors or the waterproof moulding with the help of the diagrams on the following pages.
2. Read the description on the relevant ignition cable contacts. (Alongside this description you will find the order number and packaging unit.)
3. Remove the complete ignition harness (“old”) or individual cable and measure out the cable lengths (marking the cable-cylinder order beforehand if required).
4. Using the Beru ignition connectors, sleeves and the Beru ZAZ 3 crimping pliers, make up the corresponding ignition cable set (Installation Instructions on Page 6, Page 19).

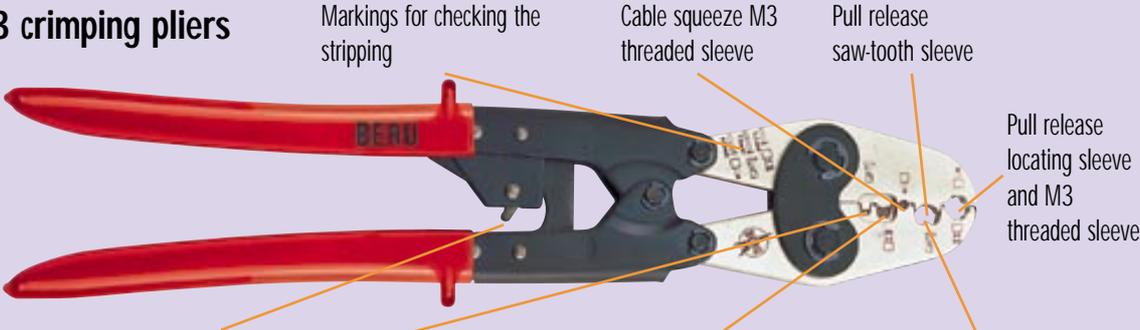
## The ZAZ 3 crimping pliers: an indispensable tool

For repairs or replacement, Beru offers a practical tool which will enable you to crimp the sleeves onto the ignition cables to the same standard as the original fittings:

### The Beru ZAZ 3 crimping pliers

The key advantages:

- The compression pressure, which is important to ensure a reliable connection, can be achieved quickly and easily during the crimping process.
- This is the only way to achieve the stipulated withdrawal values.
- This is the only way that OE quality connectors can be used.
- This is the only way to carry out repairs on the engine itself without any problems. The cable system does not have to be replaced.



### Beru ZAZ 3 crimping pliers

Order No. 0 890 300 001

## CopperCable connector systems

Audi, BMW, Mercedes, Seat and VW vehicles are fitted with technically superior high-quality copper ignition circuit systems as standard. Silicon-coated or injection moulded connectors, with integrated suppression resistance for waterproof protection, are two of the features of this engineering. The design ensures optimum heat protection, is resistant to disruptive discharge up to 40,000 volts and vibration-resistant. The suppression (in accordance with VDE) is co-ordinated to suit the ignition system of the vehicle manufacturer. Thanks to their silicon coating the ignition cables are highly flexible up to 250 °C.

### How the ignition cables are attached for total reliability as shown by the example of a Mercedes-Benz connector with M3 threaded sleeve



**1** Remove the insulation at the end of the ignition cable with the help of an appropriate tool (wire cutter). An easy way to check the correct length of cable has been stripped, i.e. 6.8 mm, is to place it in the head of the pliers.



**2** Now carefully position the M3 threaded sleeve onto the ignition cable. We recommend that you twist the fine copper wires slightly beforehand so they do not splay out when being connected, instead they all slot into the threaded section of the connection sleeve.



**3** To produce the connection between sleeve and copper core, proceed as follows: first place the ignition cable with sleeve into the crimping pliers - so that the thread protrudes out of the plier jaws. Then press the pliers together until they self-release.



**4** The connection between the sleeve and silicon outer sleeve is created during the second crimping process. Use the crimping pliers in position 1. Insert the sleeve in such a way that it closes together with the rear edge of the pliers, then press the pliers together until they self-release.



**5** Fitting the spark plug connector or the ignition distribution connector: apply installation oil to the ignition cable and the internal silicon seal on the connector.

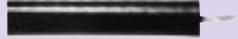


**6** The ignition cable must now be screwed into the connector. Finally, unscrew it by one quarter revolution to make it easier to subsequently unscrew the connector.

## For secure copper ignition cable connections

### Connecting the locating sleeve:

1. Strip ignition cable using appropriate tool.  
Check the measurement, 5.5 mm, by positioning on head of pliers.
3. Attaching:  
as shown on Page 6.

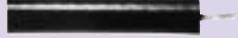


2. Insert locating sleeve onto the ignition cable as far as it will go.



### Attaching the saw-tooth sleeve:

1. Strip ignition cable using appropriate tool.  
Check the measurement, 7.5 mm, by positioning on head of pliers.
3. Attaching:  
as shown on Page 6.



2. Insert saw-tooth sleeve onto the ignition.



### Attaching the M3 threaded sleeve:

1. Strip ignition cable using appropriate tool.  
Check the measurement, 6.8 mm, by positioning on head of pliers.
3. Attaching:  
as shown on Page 6.



2. Insert M3 threaded sleeve onto the ignition cable as far as it will go.



### Attaching the SAE ignition cable sleeve:

1. Cut ignition cable cleanly.
3. Attaching:
  - a) Insert ignition cable with sleeve into pliers (see diag. 4).
  - b) Press pliers together until they self-release (see diag. 4, Page 6).

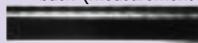


2. Push SAE sleeve with pin onto ignition cable.



### Attaching the angled SAE ignition cable sleeve:

1. Strip ignition cable using appropriate tool and bend cable core back (measurement approx. 15 mm).
3. Attaching:
  - a) Insert ignition line with sleeve into pliers (see diag. 4).
  - b) Press pliers together until they self-release (see diag. 4, Page 6).



2. Attach angled SAE ignition cable sleeve to ignition cable so that the cable core comes into contact with the body of the sleeve.



### Attaching the ignition distributor sleeve:

1. Cut ignition line cleanly.
3. Attaching:
  - a) Insert ignition cable with sleeve into pliers (see diag. 4).
  - b) Press pliers together until they self-release (see diag. 4, Page 6).



2. Attach DIN sleeve to the ignition cable.

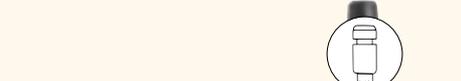


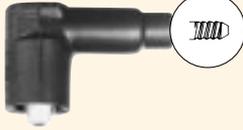
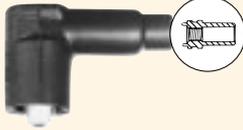
### Beru EFS 7 inserting tool



The Beru EFS 7 tool is needed for attaching the locating sleeve to the connector securely and quickly. Push the ignition cable into the tool using your thumbs; locating sleeve is now positioned in the tool. Apply installation oil. Insert ignition cable into the spark plug connector or distributor connector with the help of the tool until you hear the engaging pin-connector engage. Withdraw tool.

Order no. 0 890 300 002

Spark plug connectors		
Spark plug	Description and Order no.	Ignition cable
 SW 21                      4 mm	 ZLE 004/3 0 300 012 002	 PVC/silicon ignition cable with saw-tooth contact
 SW 16/21                      4 mm	 ZLE 147 0 300 032 101	 PVC/silicon ignition cable with saw-tooth contact
	 ZLE 166 0 300 032 107	 Silicon ignition cable with locating sleeve contact
 SW 16                              SAE	 ZLE 185 0 300 132 104	 Silicon ignition cable with locating sleeve contact
	 ZLE 190 0 300 332 109	

Ignition distributor connector		
Distributor cap	Description and Order no.	Ignition cable
 <p>Distributor cap with 8 mm DIN connection, 27 kV engineering</p>	 <p>VESO 112 0 300 513 116</p>	 <p>PVC/silicon ignition cable with saw-tooth contact</p>
	 <p>VESO 113 0 300 513 113</p>	 <p>Silicon ignition cable with M3 contact</p>
 <p>Distributor cap with 4 mm connection, 27 kV engineering</p>	 <p>VES 101 0 300 413 107</p>	 <p>PVC/silicon ignition cable with saw-tooth contact</p>
	 <p>VESO 118 0 300 513 141</p>	
	 <p>VES 107 0 300 413 113</p>	 <p>Silicon ignition cable with locating sleeve contact</p>
	 <p>VESO 117 0 300 513 140</p>	 <p>Silicon ignition cable with locating sleeve contact</p>
 <p>Distributor cap with 4 mm connection, 30 kV Motronic engineering</p>	 <p>VESO 120 0 300 513 124</p>	 <p>PVC/silicon ignition cable with M3 contact</p>
	 <p>VES 106 0 300 413 112</p>	 <p>Silicon ignition cable with locating sleeve contact</p>

★ Fitted as standard

Ignition coil connector		
Ignition coil	Description and Order no.	Ignition cable
 <p>Ignition coil with 8 mm DIN connection, 27 kV engineering</p>	 <p>VESO 112 0 300 513 116</p>	 <p>PVC/silicon ignition cable with saw-tooth contact</p>
	 <p>VESO 119 0 300 513 122</p>	 <p>PVC/silicon ignition cable with locating sleeve contact</p>
 <p>Ignition coil with 4 mm connection, 27 kV engineering</p>	 <p>VES 101 0 300 413 107</p>	 <p>Silicon ignition cable with saw-tooth contact</p>
	 <p>VESO 118 0 300 513 141</p>	 <p>Silicon ignition cable with locating sleeve contact</p>
	<p>★</p>  <p>VES 107 0 300 513 107</p>	
 <p>Ignition coil with 4 mm connection, 30 kV engineering</p>	<p>★</p>  <p>VESO 117 0 300 513 140</p>	 <p>Silicon ignition cable with locating sleeve contact</p>
	 <p>VES 103 0 300 413 109</p>	 <p>Silicon ignition cable with saw-tooth sleeve contact</p>
	<p>★</p>  <p>VES 106 0 300 413 112</p>	 <p>Silicon ignition cable with locating sleeve contact</p>

★ Fitted as standard

## Tip when installing in BMW with pulse timer for the 4 or 6 cylinder versions

On 4 cylinder engines an induction timer is fitted to the ignition cable of the 4th cylinder, on 6 cylinder engines this is fitted to the ignition cable of the 6th cylinder.

When replacing cables, save the time-consuming and costly work of refitting an ignition cable with a built-in pulse timer. Your customer will be grateful to you for the roughly thirty pounds he saves.



**1** Just remove the defective cable only.



**2** Unscrew the ignition distributor plug on the new CopperCable (spray with Beru installation oil).



**3** Drill 8 mm hole on the pulse timer (turn drill by hand).



**4** The ignition cable with the M3 connection can now be pushed through the pulse timer.



**5** Now lubricate the ignition cable with installation oil.



**6** Finally, screw on the ignition distributor connector of the CopperCable.

Spark plug connectors		
Spark plug	Description and Order no.	Ignition cable
 SW 21                      4 mm	 ★ ZLE 121 0 300 062 102	 Silicon ignition cable with M3 contact
 SW16                      SAE	 ★ ZLE 135 0 300 152 106	
 SW 21                      4 mm	 ★ WBAK 4/14/5 0 300 075 101 Ceramic version for V8 engines	
 SW 16                      SAE	 ★ ZLE 159 0 300 352 108	

★ Fitted as standard

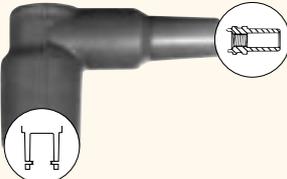
Spark plug connectors		
Spark plug	Description and Order no.	Ignition cable
 SW 16                      SAE	 ★ ZLE 245 0 300 122 302	
 SW 16                      SAE	 ★ ZLE 225 0 300 362 105	 Silicon ignition cable with M3 contact
 SW 16                      SAE	 ★ ZLE 227 0 300 362 106 12 cylinder vehicles	

★ Fitted as standard

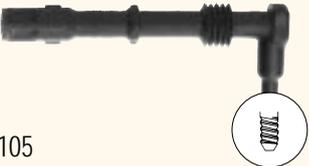
Ignition distributor connectors		
Distributor cap	Description and Order no.	Ignition cable
 <p>Distributor cap with 8 mm DIN connection</p>	 <p>VESO 113 0 300 513 113</p>	 <p>Silicon ignition cable with M3 contact</p>
 <p>Distributor cap with SAE connection</p>	 <p>VSO 103 0 300 504 101</p>	 <p>Silicon ignition cable with M3 contact</p>
 <p>Distributor cap with M4 connection</p>	<p>M108 A to E CopperCable Complete ignition cable for ignition distributor - spark plug</p> 	<p>The distributor connectors for the distributor cap with M4 connection cannot be fitted (crimped) on their own. Beru therefore supplies complete individual ignition cables in various lengths. (see CopperCable List of Applications).</p>
	<p>M111 A to C CopperCable Completion ignition cable for ignition distributor - ignition coil</p> 	

Ignition coil connectors		
Ignition coil	Description and Order no.	Ignition cable
 <p>Ignition coil with 8 mm DIN connection, standard connector pin</p>	 <p>VESO 113 0 300 513 113</p>	 <p>Silicon ignition cable with M3 contact</p>
 <p>Ignition coil with 8 mm DIN connection with thick connector pin</p>	 <p>VSO 105 0 300 504 103</p>	
 <p>Twin ignition coil (2 no.)</p>	 <p>VS 107 0 300 404 108</p>	
 <p>Twin ignition coil/connector coil (2; or 3 no.)</p>	 <p>VS 106 0 300 404 107</p>	

Spark plug connectors for 4 cylinders, 16 valves		
Spark plug	Description and Order no.	Ignition cable
 <p>SW 16/21      SAE</p>	 <p>ZLE 200 0 300 312 108</p>	 <p>Silicon ignition cable with M3 contact</p>

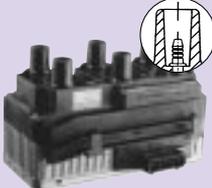
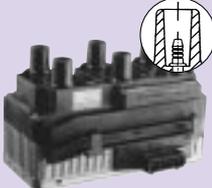
Ignition distributor connectors		
Distributor Cap	Description and Order no.	Ignition cable
 <p>Distributor cap with M4 connection 16 valve version, 30 kV engineering</p>	 <p>VESO 120 0 300 513 124</p>	 <p>Silicon ignition cable with M3 contact</p>
	 <p>VES 114 0 300 413 120</p>	

Ignition coil connectors		
Ignition coils	Description and Order no.	Ignition cable
 <p>Ignition coil with 4 mm connection, 30 kV engineering</p>	 <p>VESO 120 0 300 513 124</p>	 <p>Silicon ignition cable with M3 contact</p>
	 <p>VES 114 0 300 413 120</p>	

Spark plug connectors		
Spark plug	Description and Order no.	Ignition cable
 SW 16                      SAE	 ZLE 168 0 300 332 105	16 valve engines  PVC/silicon ignition cable with saw-tooth contact
 SW 21                      4 mm	 ZLE 205 0 300 072 110	8 valve engines  PVC/silicon ignition cable with saw-tooth contact
 SW 16                      SAE	 ZLE 212 0 300 172 107	V6 engines (Audi)  Silicon ignition cable with locating sleeve contact
 SW 16                      SAE	 ZLE 226 0 300 172 108	VR6 engines (Volkswagen)  Silicon ignition cable with locating sleeve contact

Ignition distributor connectors		
Distributor cap	Description and Order no.	Ignition cable
 Distributor cap with 8 mm DIN connection → 7.84	 VESO 113 0 300 513 113	 PVC/silicon ignition cable with M3 contact
 Distributor cap with saw-tooth connection 8.84 →	 VES 105 0 300 413 111	 PVC/silicon ignition cable with saw-tooth contact
	 VESO 116 0 300 513 119	

Ignition coil connectors

Ignition coil	Description and Order no.	Ignition cable
<p>★</p> <p>Ignition coil with 8 mm DIN connection → 7.84</p> 	 <p>VES 102 0 300 413 108</p>	
 <p>★</p> <p>Ignition coil with saw-tooth connection 8.84 →</p>	 <p>VESO 116 0 300 513 119</p>	
<p>★</p> <p>Ignition transformer 6 cylinder</p>  <p>Ignition transformer 4 cylinder</p> 	 <p>VES 105 0 300 413 111</p>	 <p>PVC/silicon ignition cable with saw-tooth contact</p>
<p>★</p> <p>Ignition transformer 6 cylinder</p>  <p>Ignition transformer 4 cylinder</p> 	 <p>VESO 116 0 300 513 119</p>	

★ Fitted as standard

Spark plug connectors		
Spark plug	Description and Order no.	Ignition cable
 <p>SW 16 SW 21                      SAE</p>	 <p>ZLE 175 0 300 112 101</p>	
 <p>SW 16 SW 21                      SAE</p>	 <p>ZLE 171 0 300 312 102</p>	

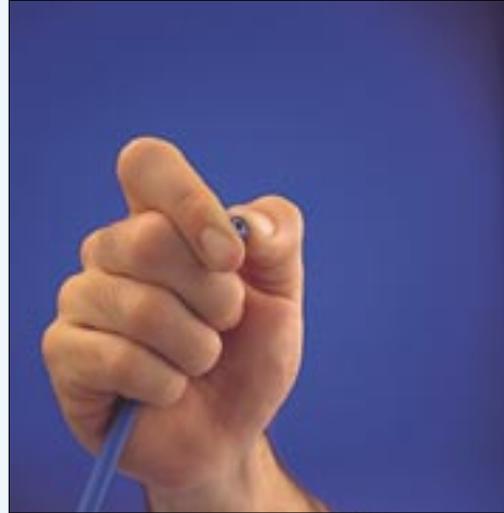
Ignition distributor connectors		
Distributor cap	Description and Order no.	Ignition cable
 <p>Distributor cap with 8 mm DIN connection</p>	 <p>VESO 113 0 300 513 113</p>	 <p>Silicon ignition cable with M3 contact</p>
	<p>VES 108 0 300 413 114</p>	

Ignition coil connectors		
Ignition coil	Description and Order no.	Ignition cable
 <p>Ignition coil with 8 mm DIN connection</p>	 <p>VESO 113 0 300 513 113</p>	 <p>Silicon ignition cable with M3 contact</p>

## PowerCable connector systems

### For secure Beru PowerCable attachments:

The high-grade steel core of this PowerCable, which is wound around a silicon carrier, can reliably transmit high-voltage of up to 40,000 volts. To ensure that this high ignition voltage also reaches the spark plugs without power loss, the PowerCable is double-insulated with a highly flexible, internal silicon layer and a sheath which remains stable, flexible and resistant to disruptive discharge at temperatures between -60 °C and +250 °C. This silicon sheath provides effective protection for the power cable against external influences such as oil, petrol, salt water and acid. Between the inner and outer insulation there is a textile material, providing mechanical strengthening for the ignition cable.



1 Press the cable together with the thumb and index finger.



2 Insert the contact pin into the cable between the insulation and resistor wire.



3 Insert sleeve into the cable (contact pin on the sleeve).



4 Now simply crimp the cable ...

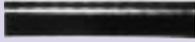


5 then, with the help of the tool and installation oil, slide into the waterproof cover on the spark plug connector from below.

## Attaching resistor ignition cables securely

### Attaching the SAE ignition cable sleeve:

1. Cut ignition cable cleanly.



2. Insert contact pin into the cable between insulation and resistor wire (see installation tip Page 19).

3. Insert SAE sleeve into ignition cable.



4. Attach

- a) Insert ignition cable with sleeve into pliers.
- b) Press pliers together until they self-release.

### Attaching the angled SAE ignition cable sleeve:

1. Cut ignition cable cleanly.



2. Insert contact pin into the cable between insulation and resistor wire (see installation tip Page 19).

3. Attach angled SAE ignition cable sleeve to the ignition cable so that the contact pin comes into contact with the sleeve body.



4. Attach

- a) Insert ignition cable with sleeve into pliers.
- b) Press pliers together until they self-release.

### Attaching the DIN ignition cable sleeve:

1. Cut ignition cable cleanly.



2. Insert contact pin into the cable between insulation and resistor wire (see installation tip Page 19).

3. Attach DIN sleeve to ignition cable so that the contact pin comes into contact with the sleeve body.



4. Attach

- a) Insert ignition cable with sleeve into pliers.
- b) Press pliers together until they self-release.

## Contact pins \* for PowerCable

	Order no.	Packaging unit
	0 901 300 010	100 nos. in poly bag

\* One bag (100 no.) of contact pins is included with every 25 m roll of PowerCable.

## Waterproof Mouldings

Type	Order no.	Length (mm)	Cable dia.(mm)	Internaldia.(mm)	Material	Use
	G 1 PK 0 010 300 002	32	5+7	15	PVC	Ignition distrib.
	G 1 PL 0 010 300 003	50	5+7	15	PVC	Ignition distrib.
	G 1 N 0 010 110 001	40	7	13	Neoprene	Ignition distrib.
	G 1 S 0 010 120 003	38	7	13	Silicon	Ignition distrib.
	G 2 S 0 010 330 003	50	7	15	Silicon	Ignition distrib.
	G 2 P 0 010 100 001	48	7	13	PVC	Ignition distrib.
	G 3 P 5 0 010 100 002	25	5	13	PVC	Ignition distrib.
	G 3 P 7 0 010 100 003	25	5	13	PVC	Ignition distrib.
	G 4 P 7 0 010 100 006	30	5	11	PVC	Ignition distrib.
	GWS 7 0 010 020 006	14	–	18	Silicon	Spark plugs
	GWS 9 0 010 020 007	27	–	–	Silicon	Spark plugs
	GWS 7 0 010 320 002	67	7	10	Silicon	Ignition distrib., Spark plugs
	GW 11 0 010 310 005	47	7	–	Silicon	Ignition distrib., Spark plugs
	G 3 S 0 010 120 004	98,5	7	–	Silicon	Spark plugs



Plug extractor  
ZSA 2 Order no. 0 890 300 008



Extractor for 16 V connectors  
ZSA 4 Order no. 0 890 300 014

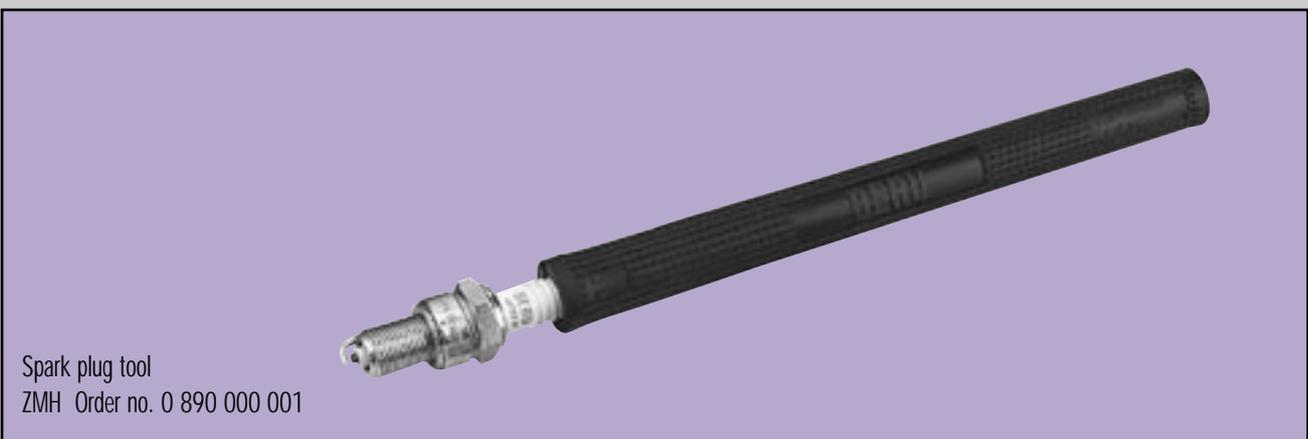
## Plug extractor

We all know the problem: the engine is hot, the spark plug connector is difficult to reach - now the spark plugs are supposed to be changed. If the connectors are pulled off at the cable there is the risk of the ignition cable being pulled out. Extracting the connector using the wrong type of pliers will damage the connector. The Beru solution: special tools which enable you to extract the spark plug connectors easily.

## The practical and helpful Beru spark plug tool

In years gone by it was all so much easier. In those days car engine compartments were so large you could almost lose the power units in them. Changing the spark plugs was no problem at all: everything was easily accessible and it took just a few minutes to do the job. Nowadays it's totally different. Filled to the brim with electronics, every tiny space is utilised and spark plugs on modern 4-valve engines are located between deep crevices. A minor operation becomes a fiddly task even for mechanics.

But now even the do-it-yourself mechanic no longer needs to throw in the towel immediately. The helpful spark plug tools from Beru make light work of changing plugs. With the help of the tool the plugs can be carefully tightened and loosened without you injuring or burning yourself on the engine. The flexible, rubber tool gives the mechanic "finger-tip sensitivity", making it easy to avoid damaging the thread on the cylinder head or spark plugs caused e.g. by overtightening or using force. The spark plug also sits firmly in the tool. So damage components or incorrect electrode gap settings are now a thing of the past.



Spark plug tool  
ZMH Order no. 0 890 000 001

## Fitting made easier: sharpening the ignition cable

We're all familiar with the problem of fiddling with ignition cables which are so difficult to insert into an ignition distributor connector, spark plug connector or waterproof cover.

There's now an amazingly simple solution which

makes installation so much easier for you. The end of the cable sheath can be sharpened slightly with the help of a normal pencil sharpener. Then, lubricated with a little installation oil, the ignition cable can be slotted easily into the opening provided.

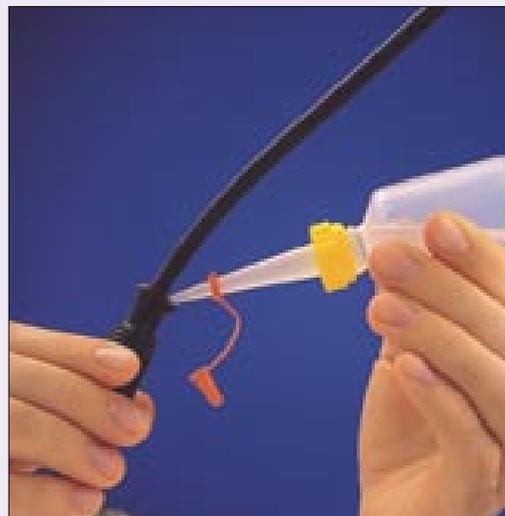


## The easy way to fit connectors, with the help of installation oil

A wide range of greases and oils are used in workshops for fitting spark plug, distributor and ignition coil connectors to ignition cables. But beware: not all materials are suitable! So it's better to be "safe than sorry"! We recommend Beru special installation oil.

This oil quickly dissolves and leaves no residues (Order no. 0890 300 020).

It is vital not to use glycerine, engine oil, battery grease, silicon grease, silicon oil or cockpit spray. These materials are unsuitable and will clog the cables!





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