

triscan•news

TRISCAN NEWS VOLUME 3 . 2016

STRENGTHENED TECHNICAL COMPETENCE
AND INTERNAL QUALITY

TRISCAN EXPANDS ITS EXTENSIVE
SENSOR PROGRAMME



**THEME:
TRISCAN
SENSORS**

ALL BRAKE COMPONENTS FROM
A SINGLE SUPPLIER



Triscan news – wherever and whenever you want it • Customer benefits through influence and insight • Triscan timing chain kit in premium quality • Triscan introduces oil seals and guide tubes of OE quality • Choose exhaust pipe connectors with care • Triscan has a better coverage than the specialists • and much more...

Who are we - and what can we do?

Triscan is a 100% Danish company who has gained a strong position in the Scandinavian market and achieved heavily increasing sales in the rest of Europe. This position has been reached through creation of concepts, marketing and distribution of automotive spare parts for the professional free aftermarket.

- Fast delivery of the right parts
- Spare parts for 52 car makes
- 50,000 references
- 25 product groups
- Complete delivery
- Online catalogue

When you buy spare parts from Triscan you will not only get a product of high and uniform quality but also a complete product supplied with all the necessary mounting parts in a user-friendly packaging with mounting instructions, reference number, application guide etc.

“Improved sales and earnings, increased efficiency, higher delivery rate, reduced stock value and greater customer satisfaction”



Every day goods are delivered from Triscan's 4 distribution centers in Brabrand, Glostrup as well as Iserlohn and Saarbrücken in Germany - to 35 markets in Europe.



Brabrand, DK



Glostrup, DK



Iserlohn, D



Saarbrücken, D

6



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20



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“ Important information about new business opportunities and useful product knowledge is always available - for the benefit of your business and your customers ”



TRISCAN NEWS - WHEREVER AND WHENEVER YOU WANT IT

As a supplier of spare parts for garages it is necessary to stay updated constantly and be able to disseminate information on business opportunities and the latest product knowledge. However, at what time of day and on what day of week do you have the time to read the news? Do you prefer to seek out the news yourself or to receive them? Would you rather receive news in electronic or printed format - or a combination of both? The choice is yours, and as the news volume grows and the opportunities of how to spread the news increase, the preferences among the recipients are also diverse.

For this reason we have, in Triscan's news coverage, emphasized that the news from us must be available wherever you want and whenever you want. On your computer, your tablet, your smartphone or in a print version - and preferably 24/7.

Electronic newsletter

On a quarterly basis, Triscan distribute an electronic newsletter - Triscan News. If you have not already signed up for Triscan News, you can easily do this under the "Press" on our website <http://triscan.dk/en/press>.

The newsletter's content and functionality have been updated in several areas. Triscan News is now also optimized to be viewed on mobile devices like tablets and smartphones. Last but not least, you will find a direct link to our website, LinkedIn page and YouTube channel where we will soon launch video instructions on how to use TriWeb.

Website and TriWeb

Both current and recent news articles are always available on Triscan's website www.triscan.com. On the homepage you will find a selection of the most recent news. If you choose to enter the specific pages for distributor/wholesaler, mechanic or industry, you will find news articles that have been specifically selected for your type of business.

Under the "Archive" menu, which you find under "Press", you will find all the news articles sorted chronologically by year. Here you will also find all previously published news articles from our electronic newsletter "Triscan News" and "New references", with information about new references and replacements in case you need it.

If you are logged into TriWeb and need to access our news area, you just need to click the "WWW" tab. Here you get direct access to the distributor/wholesaler part of Triscan's website and above mentioned news archive.

Magazine

Every six months we publish Triscan News Magazine that sums up the most important news in print format. The magazine will in the future also be available for download through Triscan's website: www.triscan.com/en/download.



LinkedIn

Our LinkedIn page is still under construction. To fully exploit the opportunities in LinkedIn, we need more followers and we therefore take this opportunity to ask every one of you, with a LinkedIn profile, to follow us on LinkedIn. Thank you in advance. If you do not already have a LinkedIn profile, you may well consider creating one.

Benefits for your business and your customers

It is our wish that the above setup has made it possible for all our customers to stay updated in the way they want to. Important information about new business opportunities and useful product knowledge is always available - for the benefit of your business and your customers.



Find Triscan on:

www.triscan.com

www.linkedin.com

NEWS

with **100%** functionality test



“Triscan’s sensors are manufactured in OE quality, and production is subject to the automotive industry’s strict quality standards TS 16949. Each sensor also undergoes a final 100% function test.”

TRISCAN EXPANDS ITS EXTENSIVE SENSOR PROGRAMME FOR ENGINE CONTROL

In Triscan's attempt to make sourcing of complex product groups easy for wholesalers and distributors, Triscan has expanded its already extensive sensor programme. The programme now contains: air flow meters, camshaft position sensors, crankshaft position sensors, EGR-valves, oxygen sensors, ignition coils, throttle bodies, coolant water temperature sensors and thermo switches. The sensor programme includes a total of more than 4,400 references and thus it meets Triscan's goal of providing the industry's most complete programmes.

For the wholesaler, this is an obvious upsell opportunity in a complex product line that has so far required several suppliers to obtain an adequate coverage.

Like Triscan's other sensors the engine control sensors are also manufactured in OE quality, and the production is subject to the strict quality control standards within the automobile industry: TS 16949. The sensors naturally undergo Triscan's usual quality test as well as a 100% functionality test.

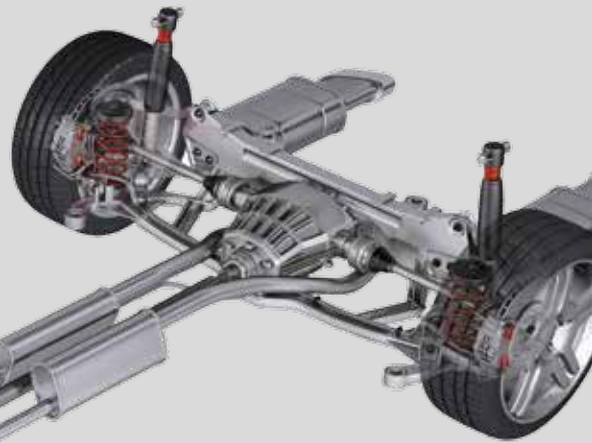
On the following pages you can read more about Triscan's latest sensors.

TRISCAN'S SENSOR PROGRAMME FOR ENGINE CONTROL AND BRAKE SYSTEM



Engine Controlling Unit

- Air Flow Meter (MAF)
- Camshaft Position Sensor (CMP)
- Crankshaft Position Sensor (CKP)
- EGR-valve (EGR)
- Oxygen Sensor (O2)
- Ignition Coil (ICP)
- Throttle Body (TB)
- Coolant Water Temperature Sensor (WTS)
- Thermo Switch



Brake system

- ABS/ASR/ESP Sensor
- ABS-ring/Sensor
- Brake Pad Wear Sensor

THEME: TRISCAN'S SENSOR PROGRAMME

TRISCAN'S LATEST ADDITIONS TO THE SENSOR PROGRAMME

Water temperature sensors

The water temperature sensor is typically placed either on the thermostat housing or on the engine block. It measures the cooling water temperature which is used for the vehicle's engine management (ECU). The information is used to control the mixing ratio of air and fuel, to control the ignition timing, and to control the electric radiator fan(s). The programme consists of more than 100 references - all of course in OE quality.



Camshaft and crankshaft position sensors

The sensors measure the crankshaft's and camshaft's rotational speed and/or position to be used by the vehicle's engine control unit (ECU), which uses the information to control the ignition system. The programme consists of more than 400 references - and all sensors in OE quality.



Air flow meter

The air flow meter, which is placed on the air inlet side detects the current flow of air into the combustion chamber. The information is transmitted to the vehicle's ECU, which among other things uses this information to control the mixing ratio of air and fuel. The programme of air flow meters consists of more than 300 references in OE quality.



TRISCAN'S SENSOR PROGRAMME NOW INCLUDES:

Air flow meters, camshaft position sensors, crankshaft position sensors, EGR-valves, oxygen sensors, ignition coils, throttle bodies, coolant water temperature sensors, thermo switches, ABS-sensors/-rings and brake pad wear sensors.

The programme will continuously be extended by several types of sensors.



PRODUCT INFORMATION

Product information about our sensors can be found under the individual sensors on: triscan.dk/en/products-distributorwholesaler

NEWS


News related to our sensors can be found under the individual products: triscan.dk/en/products-distributorwholesaler



NEWS

with 100% functionality test

“*The market’s most comprehensive range of sensors provides increased sales and earnings with less inventory costs and reduced manpower for programme maintenance and purchase*”



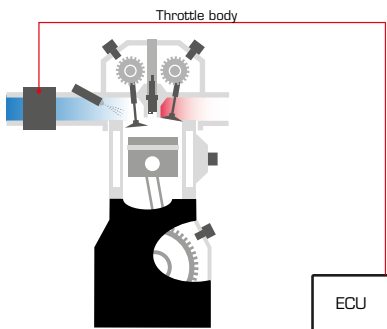
THEME: TRISCAN'S SENSOR PROGRAMME

NEW – THROTTLE BODIES WITH INTEGRATED SENSOR

Triscan's programme of sensors now includes throttle bodies. So far, the programme is founded on 34 of the most popular references for car models where the throttle body position sensor is an integrated part of the throttle body. Before long, the programme is accompanied by a programme of throttle body position sensors for car models where the sensor is NOT an integrated part of the throttle body.

Like Triscan's other parts for the engine, the throttle bodies are all made in OE quality. The production is subject to the automotive industry's strict quality standards TS 16949, and each throttle body undergoes a 100% functional test.

In fuel injected engines, the throttle body is part of the air intake system that controls the amount of air flowing into the engine, in response to driver accelerator pedal input in the main. The throttle body is usually positioned between the air filter box and the intake manifold, and it is usually attached to, or positioned near, the mass airflow sensor.



Typical construction with a throttle body

Electronically controlled throttle bodies work as follows: The ECU detects the accelerator's position and gives a message to the throttle body to open the valve. A throttle position sensor communicates the position of the valve to the ECU. The airflow meter recognizes the increased volume of air and gives a message to the injection system to inject more fuel. Throttle bodies may also contain valves and adjustment sensors to control the minimum airflow during idle - very often an electrically controlled (solenoid) valve IACV (Idle Air Control Valve) which the ECU uses to control the amount of air that can bypass the main throttle opening to allow the engine to idle when the throttle is closed.

NEW

Throttle body

Technical info

In fuel injected engines, the throttle body is the part of the air intake that controls the amount of air flowing into the engine, in response to driver accelerator pedal input in the main. The throttle body is usually located between the air filter box and the intake manifold and is usually attached to, or near, the mass airflow sensor.

Triscan

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Triscan smartparts - the smart choice

- > Triscan's programme within throttle bodies are all of OE quality.
- > Wide covering programme.
- > More than 30 references.
- > Triscan's production of throttle bodies is subject to the strict quality control standards within the automobile industry: TS 16949, and every sensor undergoes a 100% functionality test.
- > Our programme within sensors also comprises:
 - ABS-sensors
 - Brake pad wear sensors
 - Crankshaft Position Sensors
 - Camshaft Position Sensors
 - Oxygen sensors
 - Air Mass Meter
 - Thermo switches
 - Water temperature sensors

TRISCAN smartparts

Product sheet - and technical info about throttle bodies from Triscan



TRISCAN TIMING CHAIN KIT IN PREMIUM QUALITY

To complement and complete Triscan's programme of parts for synchronization between crankshaft and camshaft/ camshafts, the product programme is now extended with timing chain kits. The programme currently includes more than 60 references and is regularly expanded.

Triscan timing chain kits are as Triscan timing belt kits characterized by very high quality. The majority of Triscan's timing chain kits comes with chains produced by Germany's largest manufacturer of timing chains for the European automotive industry.

The kits contain - depending on reference number - parts as chain tensioners, chain collectors, guides, gears, brackets, bolts and gaskets.



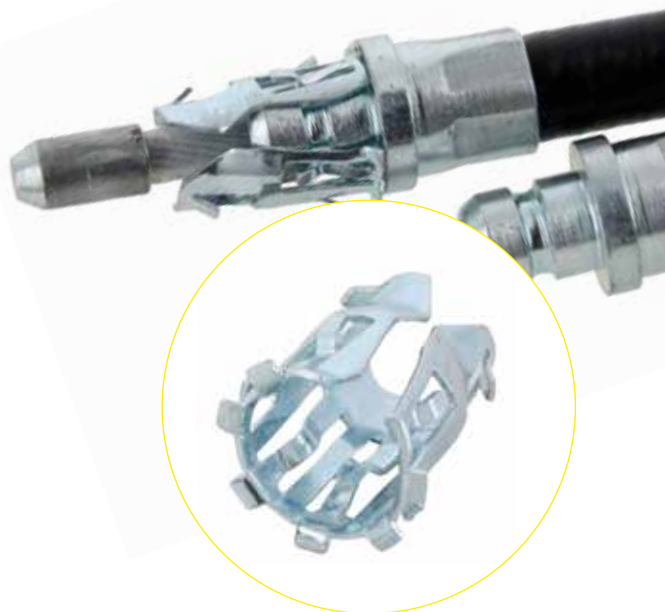
Triscan ref. 8650 10002

CLIPS FOR BOXER, DUCATO AND JUMPER HANDBRAKE CABLE

The clip is sold originally as an individual component (PSA OE 4341.14), but at a cost far exceeding the value of the cables - and therefore making a repair costly.

As a cheaper alternative, the clip is sold as part of a set (PSA OE 4333.05 and Fiat OE 9949473 - but only as a set of two clips and two springs). The springs rarely break, and therefore there is no reason to pay for a whole set, of which only half is used.

As the only one on the aftermarket Triscan supplies, the clip as an individual part in the absolutely most affordable version (Triscan ref. 8140B20). Thus, you need not order something which might not be used, and this way you reduce the customer's expenses.



Triscan ref. 8140 40B20

THE CLIP FITS ON THE FOLLOWING CABLES:
8140 10134, 8140 10140
AND 8140 10141



STRENGTHENED TECHNICAL COM
AND INTERNAL QUALITY



“Our extensive quality control has meant that we have constantly been able to improve our already low claim rate. We are obviously very proud, not least because it is also of great benefit for the wholesalers, garages and especially car owners.”

In an effort to maintain a high level of quality, Triscan continuously invests in various equipment, which is used in the internal quality control. “Although our production of parts is subject to very strict requirements, we regularly conduct external, independent quality control, and in addition, we also conduct random tests at our main warehouse in Brabrand, where all goods are received,” says Jørgen Grand, Product and Quality Director at Triscan. Most recently, Triscan has, among other things, invested in an ozone chamber for accelerated ageing test of rubber and equipment for tension and compression testing.

“Our extensive quality control has meant that we have constantly been able to improve our already low claim rate. We are obviously very proud, not least because it is also of great benefit for the wholesalers, garages and especially car owners,” concludes Jørgen Grand.

Accelerated ageing testing of rubber

The new ozone chamber is used to test a wide range of product groups. “For example we use the ozone chamber to test brake hoses and all our different cable types. We also use it for testing all boot types, oil seals and heating/cooling and fuel hoses,” says Asger Thybo Geertsen, Product Manager at Triscan, and he continues: “Soon we will also use the equipment to perform comparative tests between our own and our competitors’ products. This gives us the opportunity to demonstrate if our quality is better, comparable or poorer compared to our competitors. In the latter case - which of course is unthinkable (says Asger Thybo Geertsen with a smile) - we have the opportunity to refine the production of our parts.”

Tensile and pressure test

Triscan’s equipment for tensile and pressure testing is, like the ozone chamber, used to test a variety of product lines. “It is obvious to use the equipment to do pull tests on brake hoses. But we also use the equipment to perform both tension and compression tests on conventional gas springs for e.g. trunk lids and hoods,” says Asger Thybo Geertsen, and he adds: “We

also carry out tension and compression tests on the type of vibration dampers in the engine’s V-belt drive using gas springs as part of the construction. We are thus able to continuously conduct tests and take action if necessary.”

Useful investigation tool

Triscan’s test equipment will not be used exclusively in connection with the ongoing quality assurance work. The equipment is also used in the work with claims. “We try whenever possible to decide internally whether a claim is justified or not. In this context, we often use our internal expertise and test equipment,” says Asger Thybo Geertsen, and he adds: “In this way we can often quickly deliver a well-documented report within a very short time, which is beneficiary for all parties involved,” concludes Asger Thybo Geertsen.



Triscan’s equipment for tensile and pressure testing is, like the ozone chamber, used to test a variety of product lines

PETENCE

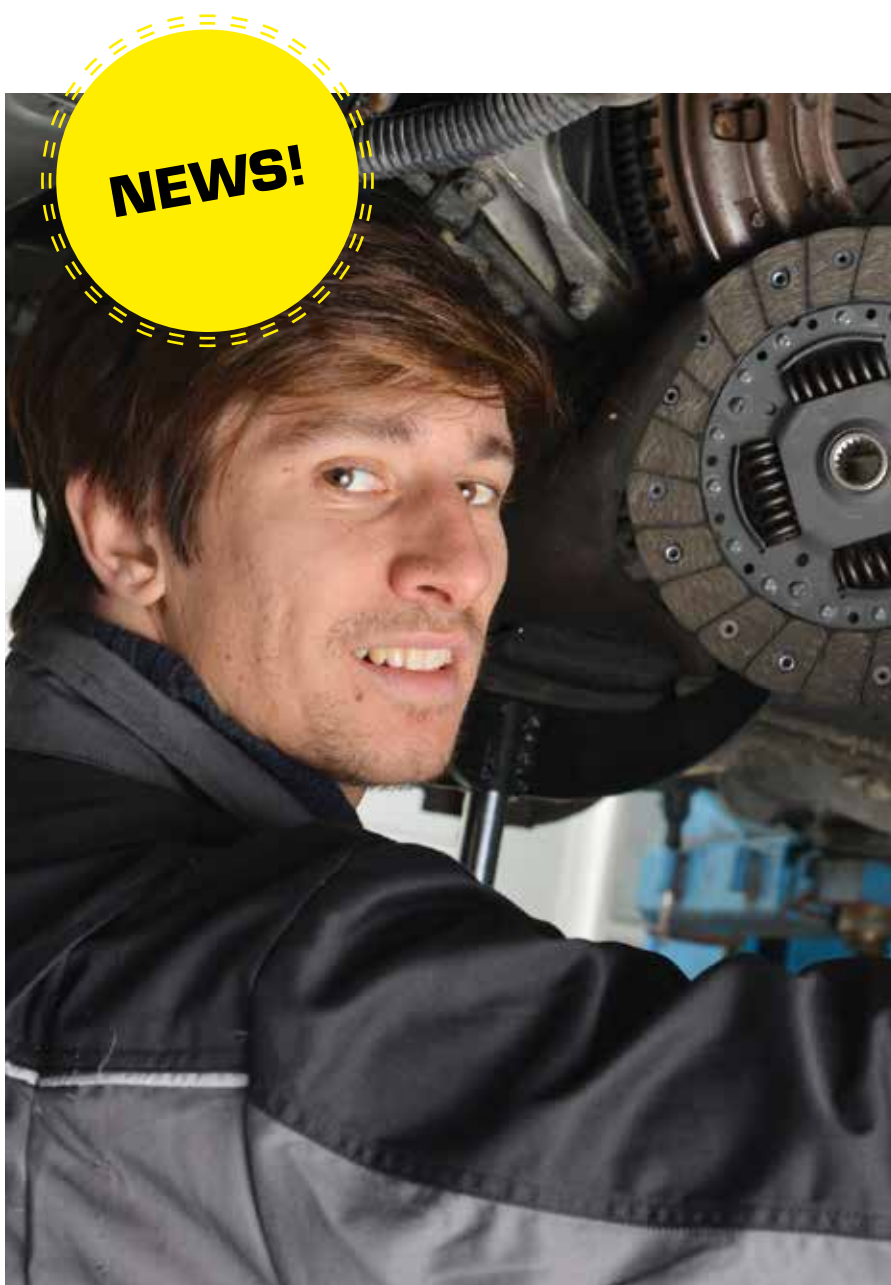
TRISCAN INTRODUCES OIL SEALS AND GUIDE TUBES OF OE QUALITY

Triscan has oil seals and guide tubes with oil seals in OE quality in the transmission programme, and therefore you do now have the opportunity to get all the parts for a complete replacement of a defective clutch.

When replacing a defective clutch it is recommended by the car manufacturers that you simultaneously replace both the oil seal and the guide tube. In that way you minimize the vehicle owner's risk that the newly installed clutch is destroyed after a short time due to leakage from leaking oil seal or guide tube. Oil seals and guide tubes with many kilometers behind them will also over time be filled with impurities, and therefore also constitute a risk of leaks in the clutch system.

When replacing the oil seals and guide tubes you ensure that the gearbox oil is not leaking, and thus you avoid irreparable damage to the clutch.

Triscan now offers 90 oil seals and 24 guide tubes in the transmission programme. All oil seals and guide tubes with oil seals are in the usual OE quality, and can be ordered via Triscan's TriWeb.



90 references




Oil seal from Triscan

24 references



Guide tube from Triscan

 When replacing a defective clutch it is recommended by car manufacturers that you simultaneously replace both oil seal and guide tube.



“ Good service and complete repairs mean happy and satisfied workshop customers ”

CUSTOMER BENEFITS THROUGH INFLUENCE AND INSIGHT

More than three years ago, Triscan became co-owner of a gas spring factory in Latvia. The influence on the development of new references is given high priority, but also the insight into the production technology and processes, and access to detailed knowledge of commodity and producer prices has great value. The influence and insight is actively used in Triscan's continuing work to offer the widest programme and the best delivery service on competitive terms.

Annually, the factory produces more than 1 million gas springs for vehicles and industrial/universal use. Triscan's programme of gas springs for vehicles comprises more than 1,360 references and the industrial/universal programme includes more than 330 references (see online catalogue). The more than 60 employees work in three shifts in the 1,300 m² production hall where the production is approved in compliance with the ISO 9001: 2000 (quality and traceability) and ISO 14000 (environmental) standards.

Own development and tooling department

In our development department new references are designed according to OE specifications and in 3D CAD (Autodesk Inventor) from which the traditional manufacturing drawings are generated. The development department's expertise also covers the development of special fittings, which many gas springs are equipped with and which are always fitted onto Triscan's gas springs and are part of a complete delivery.

In the tooling department the necessary punching tools for the special fittings are produced, which adds a great flexibility and independence and reduces the development time of new types of gas springs considerably. "The requirements for complete and fast deliveries increase and we expect through this step to be even faster to get new references into our European markets," says Sales and Marketing Director Steen Ray Pedersen and continues: "We want to help our customers increase sales and reduce costs for product management and inventory financing. The achievement of this goal has made us one of the largest in Europe within several product areas, including gas springs."



Extensive testing and quality assurance of new products

Before a new type of gas spring is put into production, it undergoes a defined function test. The gas spring is activated 40,000 times and for each 10,000 times of activation, the cycles of opening and closing force is measured, which must only decrease by maximum 10 percent. In addition, the gas spring is exposed to a climate test in order to document that the gas spring is operable at temperatures from +80 to -50 degrees Celsius.



Flexible production and fast delivery

The manufacturing process is as far as possible fully automated, but parts of the production - including the assembly of the piston - is done partly manually. The gas springs are stored empty and not filled with gas until immediately prior to shipment. After filling gas in the cylinder, a gas spring sample is tested to ensure that the opening and closing force is in accordance with specifications.

This ensures a great flexibility and speed in relation to the supply capacity, which is of course essential for Triscan's achievement of a 97% delivery performance towards the customers.



“ Through co-ownership of the gas spring factory Triscan ensures 100% focus on the development of gas springs for the latest car models ,”





“ Coated brake discs minimize the amount of corrosion on the brake disc, which by time can create rust film on the rims ”

ALL BRAKE COMPONENTS FROM A SINGLE SUPPLIER

Over the past few years' expansion within the brake system parts programme, Triscan has almost become a OneStop shop within this area. With a coverage of the car parc of up to 97%, the garages are able to get the necessary spare parts for even the most rare cars.

The expansion of Triscan's programme of brake parts in recent years has been supplemented with wheel sensors/ABS sensors and wear indicators. "We have seen a very strong demand for new product groups within the brake system," says Steen Ray Pedersen, Sales and Marketing Director at Triscan and adds: "ABS sensors are taken in as part of our comprehensive sensor programme which both the Danish as well as the foreign markets have received very well. For the wholesaler, this is an obvious upsell opportunity in a complex product group that has so far required several suppliers to obtain an adequate coverage."

Triscan's programme within brake discs is in a transition phase, where the majority of references within conventional uncoated brake discs have been phased out and replaced by the coated type. "The coating technology is now so widespread that the extra costs are affordable and this has had a natural impact on the demand in recent years. The advantage of using coated brake discs is obviously greatest when also using aluminum rims. With coated brake discs mounted on your car, you minimize the corrosion on the brake

disc, which by time can create rust film on the rims", says Jørgen Grand, Product and Quality Director at Triscan. For some of the older part of the car parc, it will still only be possible to get uncoated brake discs.

With more than 2,600 references, Triscan has succeeded in taking the leading position in terms of coverage with its programme of brake hoses. "We are almost tempted to say: "if it exists, we have it!" says Steen Ray Pedersen, and adds: "The wholesaler who chooses to sell Triscan brake hoses, makes life incredibly easy for himself, does not have to say no in regards to special requests from the garages and is able – at all times – to deliver spare parts in the usual high quality."

But also even more special products will continuously find their way to Triscan's programme of brake parts. The electrically operated hand brake system on Renault Grand Scenic (2003-2009) and Ford C-Max (2003-2007) often fails due to faulty cables. Until recently it has only been possible to repair the parking brake by replacing the complete unit (control box and cable) - example OE ref. 360101216R for Renault (price approximately € 558). As a result of this, Triscan has developed and manufactured the cables individually 8140 251201 (Renault) and 8140 161 189 (Ford), and thus repairs can be carried out at a much cheaper price.



BOIL-TEST OF THERMOSTATS ENSURES A FAIR HANDLING OF CLAIMS



At Triscan, we do not want to compromise on the quality of our thermostats, and therefore we only use manufactures who meet the TS 16949 and ISO 9001 standards.

Handling of claims

In case of a claim of a thermostat, the thermostat will undergo a thorough examination as well as a so-called boil-test to determine, if the claim is legitimate or not. "We use boil tests to make a fast determination whether or not the thermostat is defective", says Product Coordinator Søren Nielsen. When boil-testing, you place the thermostat in water, which you bring up to its boiling point - it will clearly show if the thermostat opens and closes as it is supposed to". If the boil-test shows that the thermostat functions as intended, we will carry out further examinations in order to uncover where the problem should be found", says Søren Nielsen. In most cases, the problem is not the thermostat itself, but a mistake in the cooling system, a defective cap in the radiator or the expansion tank – or just air in the system.

A complete delivery

Triscan's wide programme within summer and winter thermostats contains more than 540 references – and gives a 93,7% coverage of the car parc. You will therefore rarely return empty-handed with a request for a thermostat at Triscan.

Triscan offers a complete solution, where we add all gaskets and O-rings. Everything delivered in one, single package. By this, you get the widest coverage of the car parc with a few references. For the customers, this means fewer references to manage and fewer references to stock. In brief better profits and higher customer satisfaction.

On the list of OE customers, you will find among others GM, Chrysler, VW, Audi and BMW.



When boil-testing, you place the thermostat in water, which you bring up to its boiling point - it will clearly show if the thermostat opens and closes as it is supposed to



**“ In most cases, a problem in the cooling system is not caused by the thermostat
- according to Triscan’s boil-tests! ”**

A woman with long brown hair, wearing a red short-sleeved shirt and a silver necklace, is writing the words "BEST CHOICE" in large, red, hand-drawn letters on a whiteboard. She is holding a red marker in her right hand. The background is a bright, out-of-focus white wall.

**BEST
CHOICE**

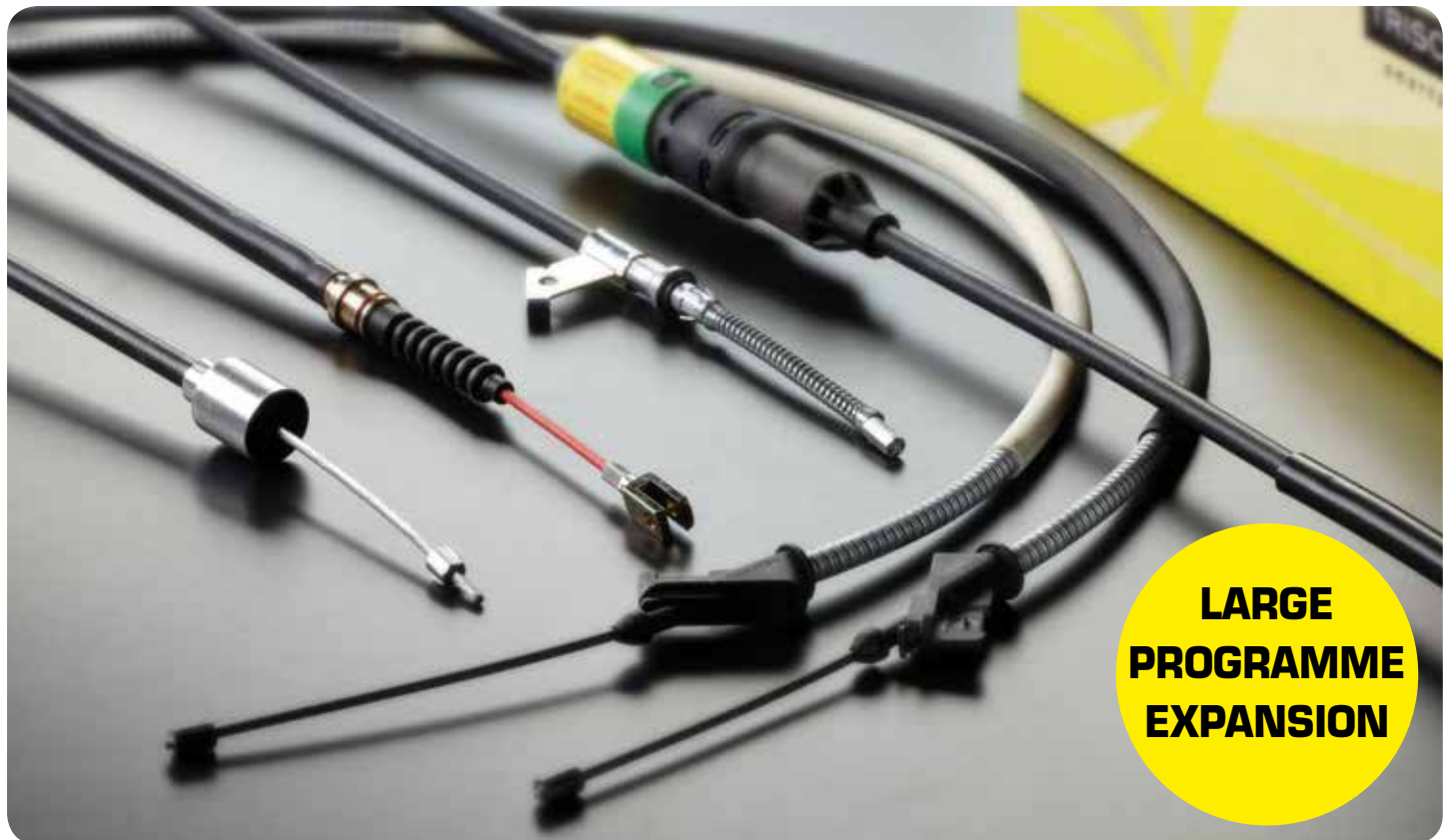
“With the widest cable programme available the wholesaler can supply cables for even the most special cars - better service and better profit!”

TRISCAN STILL OFFERS THE LARGEST AND MOST COMPREHENSIVE PROGRAMME WITHIN THE CABLES

There is a growing demand for gearshift cables - and with more than 140 references, we can now offer a wide coverage of the market. We are, for example, the only supplier on the free aftermarket who can offer gearshift cables for Mazda 6 - generation 2003 and 2008:

- Reference: 814050701
- Reference: 814050702
- Reference: 814050703
- Reference: 814050704
- Reference: 814050705
- Reference: 814050706

We stock gearshift cables for most French car makes as well as for Alfa Romeo (Mito), Fiat (including 500, Grand Punto and Ducato), Ford, Mercedes Viano/Vito, Opel , Toyota, Volkswagen and others.



Triscan has a better coverage than the specialists

Handbrake cables for Asian cars is one of our biggest strengths. Based on an analysis of data in Tecdoc, we offer a better coverage than the specialists within this area. *(see page 25)*

We now keep more than 3700 references in stock of the following types of cables:

HANDBRAKE CABLES
2556 references

CLUTCH CABLES
548 references

GEARSHIFT CABLES
149 references

TRAILER CABLES
38 references

ACCELERATOR CABLES
287 references

SPEEDOMETER CABLES
87 references

BONNET CABLES
28 references

CHOKE CABLES
16 references

All cables are - of course - of the usual OE quality.



**“ Triscan has a better coverage than the suppliers having specialised
in Japanese and Asian cars ”**

TRISCAN HAS A BETTER COVERAGE THAN THE SPECIALISTS

Most readers will probably understand the wording of the headline as quite a postulate, and at Triscan we are also quite surprised by the results of an analysis based on TecDoc data. It shows that Triscan has a better coverage than the suppliers having specialised in Japanese and Asian cars.

The analysis

In the analysis the linking of several product lines of Triscan's to the Danish, German and French car parcs is compared to spare part distributors promoting themselves as being specialists in Asian cars.

Cables:

	Triscan	Comp 1	Comp 2	Comp 3	Comp 4
	91,64%	83,65%	66,65%	66,05%	56,01%

Brake hoses:

	Triscan	Comp 1	Comp 2	Comp 3	Comp 4
	98,40%	84,80%	83,30%	65,40%	60,40%

How does Triscan achieve this?

A question that many readers may ask themselves having read this article could be "How does Triscan manage to do so?" Part of the secret is found in the Product Management in Triscan. In 2010 Triscan decided to implement a new Product Data Management (PDM) system. The PDM system contains up-to-date and detailed data of the whole European car parc. "More than 40 PDM employees make sure that the system is updated with OE data on new models and changes in the existing car parc. Thus we have a good basis for updating and refining our different product lines", Product Team Manager Asger Thybo Geertsen says, and he continues "The development of new cars is often platform-based and therefore several car makes use the same technology. Consequently it is not unusual that new cars make use of a well-known technology, and thus we often see that spare parts that are already implemented in our programme are also used on new models".



When "gaps" in a product line are identified, Triscan's many years of experience in having spare parts manufactured makes a significant difference. "In cases where we make use of subsuppliers, we often choose to have the production tools manufactured ourselves", says Asger Thybo Geertsen, and he continues "But sometimes, we also choose to buy the OES parts to ensure the wide coverage".

CHOOSE EXHAUST PIPE CONNECTORS WITH CARE

An exhaust pipe connector is not just a connector and few may know that the position of the connector in the exhaust system determines which of a total of three types should be used.

The exhaust pipe connector was originally developed to reduce the noise and vibrations which the exhaust system generates in a vehicle, and was mostly used between the exhaust manifold and the exhaust down pipe on vehicles with transverse engine and front wheel drive. "Gradually, the use of exhaust pipe connectors also spread to other parts of the exhaust system and in connection with turbochargers," says Jørgen Grand, Product and Quality Director at Triscan and continues: "It is exactly the diverse application that determines which of the total of three types of exhaust pipe connectors you should use. Basically you distinguish between the flex pipe to be used at temperatures up to 650° C, up to 800° C or above 800° C".

Up to 650° C

For petrol engines you should use exhaust pipe connectors with a working range up to 650° C at the rear silencer. For diesel engines this type of exhaust pipe connector is used immediately after the particle filter. The pressure in this part of the exhaust system does not exceed 20 psi working pressure, and the exhaust pipe connector can therefore be designed in a simple two-layer construction as shown here.

Up to 800° C

Exhaust pipe connectors that can withstand temperatures up to 800° C are typically positioned at the start of the exhaust system. The pressure in this part of the exhaust system exceeds 20 psi, and the connector must therefore be designed in a three-layer construction as shown here.

Above 800° C

Exhaust pipe connectors are also in some cases used in connection with the wastegate in the turbo system - for example in the VW Touran - for the purpose of reducing vibration transmitted to the turbocharger. This type



of connector requires a special three-layer structure as shown below.

Triscan's programme of exhaust pipe connectors

Triscan's programme of exhaust pipe connectors comprises 41 references which are all manufactured in a sturdy 3-layer construction that ensures long durability and which can be used at temperatures below 800° C. The flexible connectors, for welding, are in a superior quality stainless steel – SS 304 – and can be supplied with or without socket. "The price difference between the

2- and 3-layer versions is not very big, and because the number of references is already high, it will not be profitable for the garages, the wholesalers or Triscan to offer both types," says Jørgen Grand, adding "Flex connectors have an exposed existence and we have therefore chosen to manufacture our programme in superior and durable materials. The programme also includes a so-called uni flexible pipe which can be adapted to three different pipe diameters. In addition to flexible connectors, Triscan also offers a programme of 17 different pipe sockets.

2-layer construction	<p>650° C</p>	3-layer construction	<p>800° C</p>	3-layer construction	<p>>800° C</p>
	<p>2-layer construction for temperatures below 650° C and 20 psi. Outer layer: Braided hose Inner layer: Piping in metal</p>		<p>3-layer construction for temperatures below 800° C and over 20 psi. Outer layer: Braided hose in metal Middle layer: Piping in metal Inner layer: Braided hose in metal</p>		<p>3-layer construction for temperatures above 800° C and over 20 psi. Outer layer: Braided hose in metal Middle layer: Piping in metal Inner layer: Double-flange hose in metal</p>

TRISCAN'S WIDE PRODUCT PROGRAMME

All Triscan's products are manufactured in OE quality. Our product programme covers more than 97% of the European car parc. If you choose a product group from Triscan, you can do with just one supplier.

ENGINE

- Air flow meters
- Camshaft position sensors
- Crankshaft position sensors
- Diesel
 - Common rail injectors
 - Common rail pumps
 - Pump and nozzle units
- Engine gaskets
 - Cylinder head gaskets
 - Gasket kits
 - Gasket kits w/o cyl. head gasket
 - Oil-pan gaskets
 - Valve cover gaskets
- Engine parts
 - Camshaft kits
 - Lifters
 - Top bolts
- Exhaust
 - Clamps
 - Flexible connectors
- Fuel hoses
- Ignition coils
- Ignition wire sets
- Micro-V belts, kits
 - Alternator pulleys
 - Belt tensioner units
 - Idlers
 - Micro-V belts
 - Pulleys
 - Stretch fit V-belts
 - V-belts
 - Vibration dampers
- Oil plugs & gaskets
- Oxygen sensors
- Timing belt kits
 - Belt tensioners
 - Idlers
 - Micro-V belts
 - Oil seals
 - Timing belts
 - Vibration dampers
- Timing belts, Water pump kits
- Timing chain kits
- Throttle bodies
- Vacuum hoses
- Waterpumps + Timing belt kits

TRANSMISSION

- Accelerator cables
- Anti-friction spray
- Bolt kits, flywheels
- Bonnet cables
- Boot kits
- Choke cables
- Clutches/clutch kits
 - Clutch cylinders
 - Clutch grease
 - Clutch hoses
 - Clutch release bearings
 - Guide bearings
 - Guide bushings, clutch bearings
 - Hydraulic release bearings
 - Oil seals
- Clutch cables
- Clutches, various
- C.V. joints
- Drive shafts
- Grease
- Oetiker clamps
- Propeller shaft support
- Shift cable
- Speedometer cables
- Trailer cables
- Tripod joints
- Tools
- U-joint
- Universal clamps

BODY

- Gas springs
- Refills for BOSCH flatblade
- Steering dampers
- Universal gas springs
- Universal wiper refills
- Washer pumps
- Wiper refills

COOLING SYSTEM

- ALU-flex duct hoses
- Flushing tools - cooling system
- Heater hoses
- Radiator caps
- Radiator hoses
- Thermostats
- Thermo switches
- Waterpumps
- Water temperature sensors

STEERING & SUSPENSION

- Boots
 - Mounting kits
 - Protection kits
- Bushings
- Coil springs
- Grease
- Leaf springs
- Power steering pumps
- Rack and pinions
- Shock absorbers
- Spheres - suspension
- Stabilizer rods
- Standard bearings
- Steering columns
- Steering parts
- Strut bearing kits
- Strut bearings
- U-bolts
- Wheel bearing kits
- Wheel hubs

BRAKE SYSTEM

- Accessory kits
- ABS-rings
- ABS sensors
- Bleed screws
- Brake cables
- Brake calipers
 - Guide tube kits, brake calipers
 - Pistons
 - Rep. kits
- Brake discs
- Brake drums
- Brake hoses
 - Banjo bolts
 - Clips for brake hoses
- Brake pads
- Brake pipes
 - Idlers
- Brake shoes
- Pressure regulators
- Wear indicators
- Wheel cylinders

MISCELLANEOUS

- Ear clamps
- Flashers
- Hose clamps
- Standard bearings
- Trailer cables
- Universal gas springs

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