



Air Spring Competence

the Commercial Vehicle Replacement Market

ContiTech and PHOENIX – consolidated know-how in air spring technology

Experience makes for technological edge.

Combined with our close contact to our customers, our experience, knowledge and competence in providing solutions, has made us a much sought after partner in the development and production of original equipment – as well as making us the number one rubber specialist in the non-tire sector worldwide.

1955: Continental becomes the first company to develop air springs for trucks and buses.

Today ContiTech Air Spring Systems develop and manufacture components and complete systems for self-adjusting air suspension in commercial vehicles, buses, trailers and rail vehicles, as well as for machines and foundation bearings. For some time now we have been the European market leader for air springs.

ContiTech air springs make commercial vehicles safer in operation, more cost-effective and more comfortable.

That's thanks to our material and process competence and our ultra-modern production and testing technology. As development partner and original equipment manufacturer we translate all of this into innovative solutions that bring value added results to our customers. We have, in fact, been doing this for decades now.

ContiTech and PHOENIX – strong together in tackling the challenges of the future.

With the merger of PHOENIX and ContiTech, the ContiTech Air Springs Systems business unit can now draw on the cumulative heritage of 100 years of experience in supplying commercial vehicles with original air spring equipment. With our two product brands – ContiTech and PHOENIX – we cover the spare parts needs for virtually the full range of commercial vehicle applications. Our comprehensive range encompasses:

Rolling lobe and convoluted air springs for
trucks
buses
trailers

and sleeve-type air springs for
driver's seats and cab suspensions

The excellent and proven quality of our air springs makes them the original equipment choice of numerous vehicle manufacturers:

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- | | | |
|-----------------|------------------|-------------------|
| › BPW | › Iveco Bus | › SAF-Holland |
| › China Highway | › Kia Bus | › Scania |
| › DAF | › Komman | › TATA Daewoo |
| › Daewoo Bus | › MAN | › Tuthill Reyco |
| › EVOBus | › Mercedes-Benz | › VDL-Bus |
| › FAW | › Monaco Coach | › Volvo |
| › Freightliner | › Raydan | › Watson & Chalin |
| › Hendrickson | › Renault Trucks | › Yutong |
| › Hyundai Bus | | |
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ContiTech Air Spring Systems.
Technology On Your Side.



Our core competencies

for failsafe, reliable and cost effective
air spring developments



High quality materials satisfy extreme demands

ContiTech air spring bellows are made of high quality elastomer materials, accounting for their excellent dynamic properties and for their reputation for long, reliable service. In benchmarking with competitor products, it has been shown that ContiTech air springs have an exactly defined load-carrying capacity and the maximum service life. Likewise they showed themselves to be superior in terms of burst pressure, cushioning and in providing a perfect assembly fit.

System competence in the service of our products

Air springs are designed to provide the load-carrying capacity, suspension characteristics and spring travel required in a given situation. All individual components, including the bellows, piston and ancillary parts, are designed to produce a perfectly harmonized system, ensuring optimum suspension characteristics and the widest possible margin of safety.

Process competence in manufacturing

Our state-of-the-art production processes guarantee our products' top performance and high quality.

Our value added chain is governed throughout by all encompassing quality planning for all products and processes:

- › Advanced Product - Quality Planning
- › Quality Function Deployment
- › Feasibility and manufacturing analysis
- › Risk analyses (design and process FMEA)
- › Advanced Control Planning
- › Process capability analysis
- › Documentation of product and process qualification via PPF and PPAP (initial sample inspections).

Compulsory interconnection of process steps in the production stations - without interim storage points - guarantees short throughput times and optimum processability.

Test center as pacemaker for modern air spring technology

We are constantly optimizing our products and devising innovations. Our central development and testing center in Hanover puts vast research and technological resources at our disposal. Our design engineers take into account the customer requirements, of course, but also the material properties and the production processes.

Certified quality

The quality of our products and all our processes are audited and certified by our OEM customers on a regular basis. Certification to DIN EN ISO 9001, ISO TS 16949, VDA 6.1 and DIN EN 14001 confirm, more over, that our process capability measures up to the high demands an automotive supplier must fulfill.



This involves use of calculation programs developed in-house as well as the finite element method (FEM), which simulates real life load conditions, identifies weak points early on and supplies targets for optimum product design. Multi-stage inspections and tests accompany product development and are part of quality assurance in series production. Durability tests conducted in tempering chambers and on dynamic, seesaw and burst pressure test rig systems as well as in corrosion testing enable us to simulate a whole vehicle life in fast motion.

One of our outstanding test stations is the multi-axial characteristic curve test rig. It can be used for 1:1 simulation of every possible combination of axle and suspension systems, kinematics and load profiles in a given vehicle under all the various road conditions. The results obtained in these tests and simulations allow for reliable predictions as to the interplay between air spring and chassis and thus allow us to design for maximum service life under the most rigorous demands.

Our range - two strong brands from one source



The premium ContiTech brand offers you:

- › a complete OEM range for replacement needs as well
- › exactly designed suspension characteristics
- › longest possible service life expectation
- › maximum load capacity
- › simple and perfect fitting assembly



ContiTech shoulder
structure pattern



Continental
trademark horse

Original
QUALITY THE BEST REPLACEMENT

ContiTech air spring range
Europe 560 types
USA/NAFTA 650 types
together 1,210 types

We have combined both replacement market brand lines under the aegis of ContiTech Air Spring Systems. This enables us to offer you a choice between ContiTech premium brand air springs in genuine original equipment standard and tried-and-tested PHOENIX quality brand air springs. In this way you profit from:

- › over 50 years of development experience in OEM and replacement - worldwide
- › the ongoing expansion of our product range
- › our enormous production capacities
- › reliable across the board product availability - today and in the future



The quality PHOENIX brand offers you:

- › proven quality level
- › long service life
- › high load-carrying capacity

Above and beyond this the PHOENIX range encompasses additional niche products that are not part of the OEM range. In addition to cost advantages this also means a considerably expanded offer.



PHOENIX shoulder
structure pattern

PHOENIX
Air Springs

PHOENIX logo
trademark

ContiTech / PHOENIX
Europe 180 types
USA/NAFTA 400 types

PHOENIX air spring range
Europe 280 types
USA/NAFTA 400 types
together 680 types

Quality on the move on your axles – the right product for each application



Truck

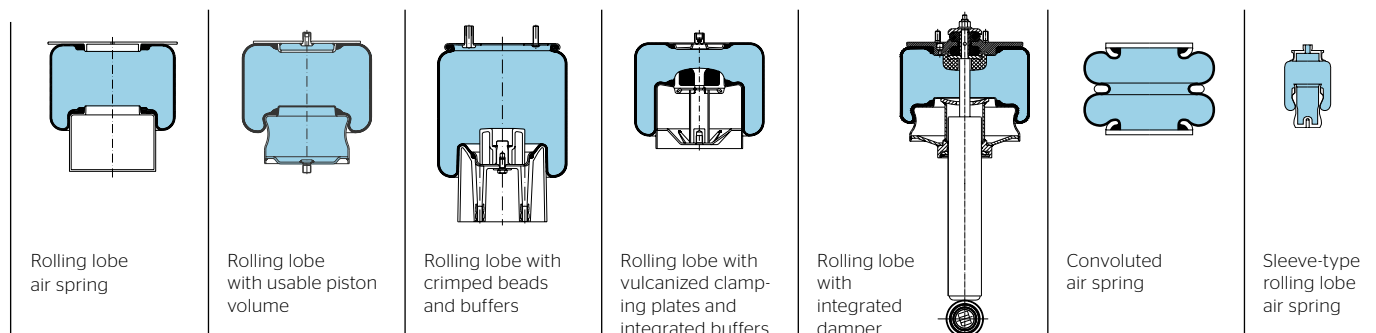
The weight of a truck, and thus the axle load, fluctuates greatly depending on the payload at any given moment. To satisfy the resulting suspension requirements, virtually all commercial vehicle manufacturers now employ air springs. Alongside providing for level control, air springs guarantee that the vehicle body remains at a given distance from the road. This, in turn, ensures safe driving regardless of the load carried. By actuating optional manual controls, the vehicle body can also be raised or lowered by means of air springs. This is of advantage when adjusting vehicle body height to the level of a ramp or for placement of an interchangeable platform.

Trailer

Air suspension on trailers ensures not only gentler treatment of the load being hauled but also less wear and tear on the roads. This aspect is of increasing significance as traffic volume grows. As a rule, each axle has two air springs. In multi-axle combinations, one axle is frequently provided with an axle-lifting device to protect the tires on empty runs or with partial loads. Air springs – as a rule convoluted type – are also used for raising and lowering lift axles.



Our complete range for the replacement market – Air springs for trucks, buses and trailers



Driver's seats

Air sprung seats make for a more ergonomic and comfortable working situation, while at the same time helping to ward off driver fatigue or health impairment.

Cab suspension

Air suspension of the cab has a major impact on ride comfort. These air springs are designed as sleeve-type rolling lobe air springs and take the form of four-point suspension between the driver's cab and the chassis frame.

Buses

In buses air springs make for safety and ride comfort. Regardless of the number of passengers, the vehicle maintains the same level, which means that the boarding level also remains unchanged. With additional control functions, the vehicle body has the capability of kneeling. This generally involves fitting two air springs to the front axle and trailing axle and four on the rear or drive axles.

Service for our partners – competent and comprehensive

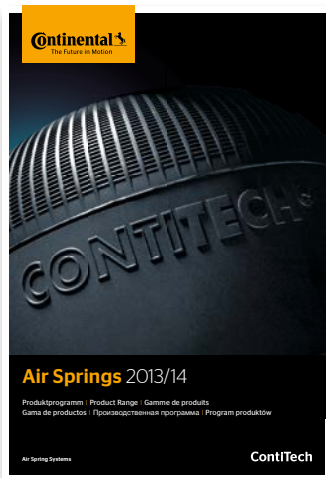
Wide-ranging information

We make widespread use of efficient communications instruments, both online and in print. Among other things this includes the multilingual online product data bank “Air Spring Systems for Commercial Vehicles”, which can be accessed via www.contitech.de/airspringsystems.

It enables dealers and users to search the full range of ContiTech and Phoenix air springs for specific products and technical data and is also available in printed catalog form. We round off our wide-ranging information offering with firstclass technical literature and other leaflets.



▲ Online catalogue www.airspringcatalogue.com



www.contitech.de/acv-app

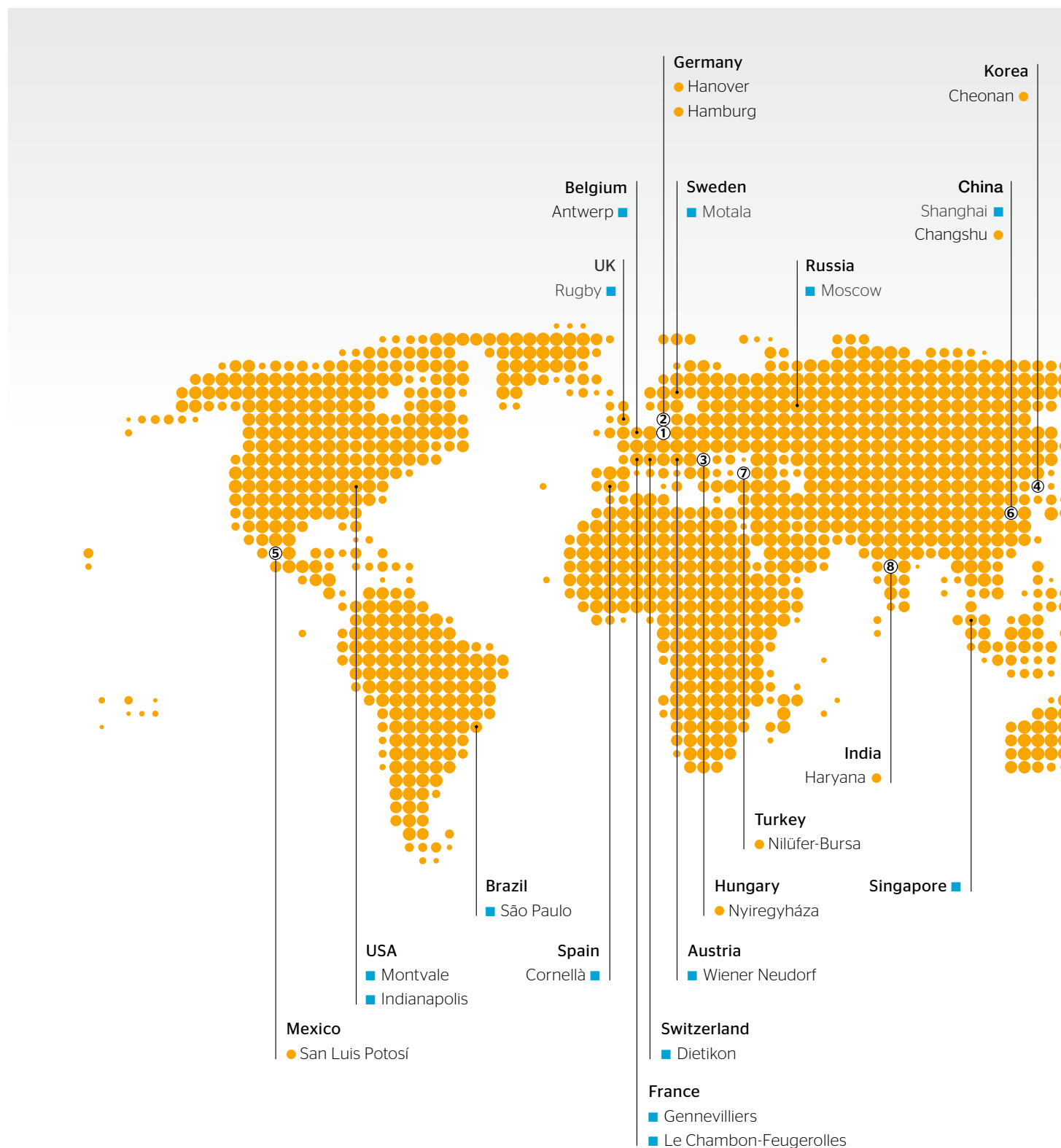
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for iPhone and Android

The new App for
your Smartphone

- › Product Information
- › Cross-Reference
- › Technical Drawing
- › Fitment Guide



ContiTech Air Spring Systems present worldwide



ContiTech Air Spring Systems has production plants in Germany, Hungary, China, Turkey, Mexico and Korea. Thanks to flexible production management at our plants we are consistently in a position to respond to fluctuations in market demand. A central warehouse for the replacement market additionally guarantees optimum supply capability for our entire range.

We manage sales by region, with our local offices collaborating closely with ContiTech's international sales organization. This ensures flexible on-site attention to our customers' needs and has created a high-degree of customer satisfaction - worldwide.

● The business unit's companies and production locations

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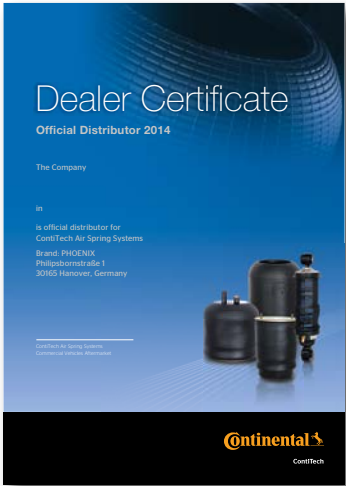
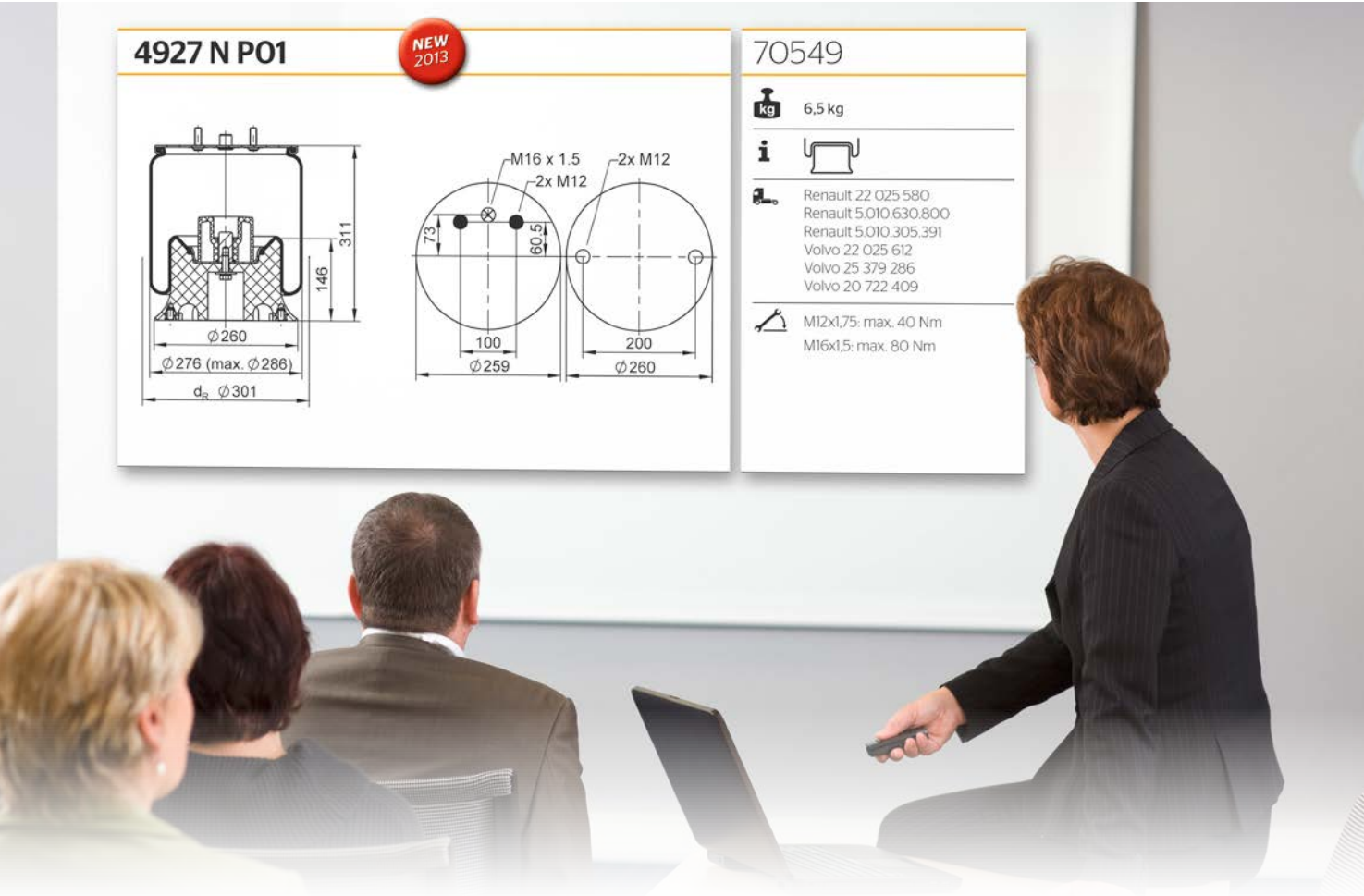
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Wide-ranging communication

We inform and qualify our partners worldwide with training sessions and other educational measures. We are also present at all major international trade shows and local customer events where we offer competent and comprehensive advice.



ContiTech

Air Spring Systems

Market segment
Replacement Business

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Your local contact

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Certification in the ContiTech
Air Spring Systems business unit:

ISO TS 16949
ISO 9001
ISO 14001



Detailed information about
our air springs can be found at:
www.contitech.de/as-rpl

ContiTech. Engineering Next Level

As a division of the Continental Group, ContiTech is a recognised innovation and technology leader in natural rubber and plastics. As an industry partner with a firm future ahead of us, we engineer solutions both with and for our customers around the world. Our bespoke solutions are specially tailored to meet the needs of the market. With extensive expertise in materials and processes, we are able to develop cutting-edge technologies while ensuring we make responsible use of resources. We are quick to respond to important technological trends, such as function integration, lightweight engineering and the reduction of complexity, and offer a range of relevant products and services. That way, when you need us, you'll find we're already there.