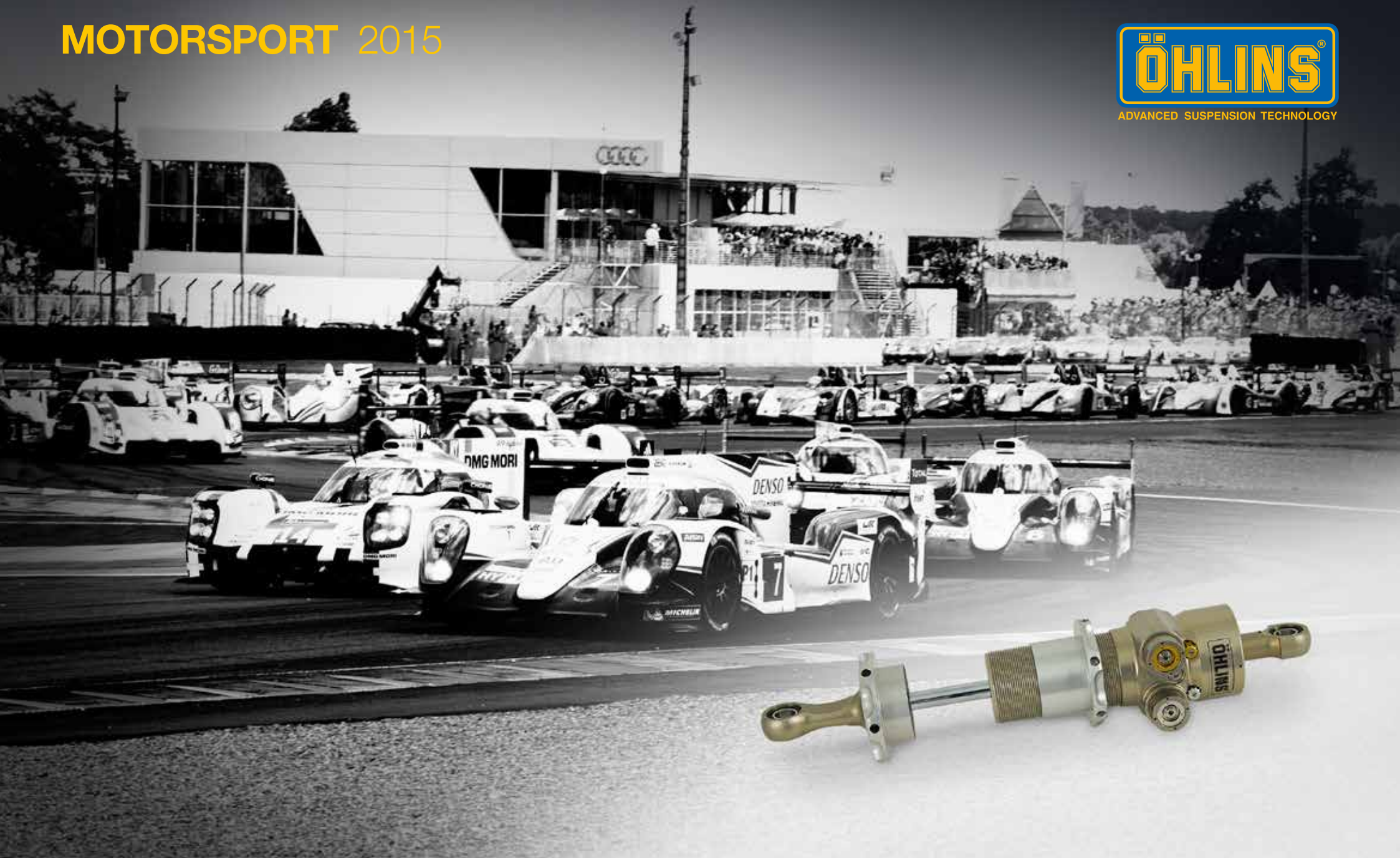


MOTORSPORT 2015

**ÖHLINS**<sup>®</sup>  
ADVANCED SUSPENSION TECHNOLOGY



## HISTORY

Ever since the company was founded in 1976, Öhlins has represented the very pinnacle of suspension technology and firmly rooted itself as an intricate part of the motorsport industry, underpinning countless world titles. That very technology has subsequently been adopted not only as the gold standard of aftermarket suspension, but is also by car and motorcycle manufacturers around the world.

Back in the 1960's, Kenth Öhlin was an up-and-coming motocross rider and showed an innate talent for mechanics. He knew how to bring the best out of his material and soon he saw himself engaged in modifying his competitor's bikes. By the time he started his business he had already designed exhaust pipes, engines and – of course – shock absorbers.

Öhlins soon became synonymous with advanced suspension. The products were not only superior in terms of technology, but as Mr. Öhlin was, and is, a very meticulous man the quality was always outstanding. The first world championship was won already in 1978, as Russian Gennady Moiseev took the 250cc title on an Öhlins equipped KTM. Since then, more than another 200 have followed.



The success continued in road racing and soon also in the automotive segment, in racing as well as in rally, all adding to the motorsport pedigree. But don't think that Öhlins was content, not for a minute. The company continued to grow, adding electronically controlled, semi-active suspension to its portfolio under the trademark CES. Today, this technology has revolutionized the car industry and can be found in a wide range of products from premium car manufacturers.

In the 1980's, Öhlins' achievements got the attention of industrial giants and in 1987, Öhlins was acquired by Yamaha. Under the Japanese ownership, Öhlins had the necessary financial stability to develop into a dominating player in the industry. Twenty years later, Öhlins was considered better off on its own legs and Kenth Öhlin regained the company he once had started.



Today, Öhlins is more than ever in the forefront of advanced suspension technology, covering areas from top tier motorsport to original equipment manufacturing. All with the same performance, quality and attention to detail.



### ÖHLINS IN NUMBERS

- Today 280 employees
- Kenth Öhlin holds a 95% stake in the company
- Headquarters and manufacturing plant in Stockholm, Sweden
  - Subsidiary in Hendersonville, NC, USA
  - Subsidiary at Nürburgring, Germany
  - Subsidiary in Thailand
- Subsidiaries in Karlstad and Jönköping, Sweden
  - 97% of all sales on export
  - Annual turnover around 60 MEUR
  - Annual growth around 15-20% last 10 years
  - 16% of turnover invested in R&D



## THE TTX TECHNOLOGY

Cavitation. Something you don't want in your shock absorber. It's devastating because basically it means the damping is lost. Small bubbles in the oil can never create the necessary damping forces. Traditional dampers working in extreme conditions sometimes suffers from low pressure on the piston backside.

The TTX was created by Öhlins engineers to eliminate the risk for cavitation. They succeeded. With the TTX technology a positive pressure balance is created in the shock which means the risk for cavitation is gone.

TTX stands for Twin Tube with the X illustrating how the flow through the valves in the cylinder-head is designed. Thanks to the twin tube technology the pressure usually created on top of the piston is transferred through the cylinder head and the adjusters for compression and rebound, then flows through the space between the inner and outer tube to the other side of the solid piston. These equals to a pressure balance within the shock. The outer reservoir is only used to take care of the oil displacement from the piston rod and heat expansion, which is why it can be fairly small in design. Inside the reservoir there is a dividing piston between the oil and the nitrogen gas. The gas pressurizes the oil to a level between six and nine bars, basically the static pressure on both sides of the solid piston.





## PRODUCT OVERVIEW 2015

Öhlins shock absorbers are available in a many different versions, all of which can be tailor made to any competition car depending on your requirement, budget and the technical specification of the car.

Our shock absorbers are all rebuildable and serviceable and designed to be modified to different kind of competition vehicles, and cover all kinds of motorsport disciplines. At Öhlins and at our trained Öhlins service centers there is experience from countless of years of motorsport success to find the winning suspension solution for you.

TYPE S36				TYPE S46							
S36D	S36PB	S36HR1C1	S36PR1C1	S46D	S46DR1	S46HR1C1	S46HR1C2	S46PR1C1	S46PR1C2	S46HMR1C1	S46HMR1C2Q1
TYPE S50		TYPE TTX36		TYPE TTX36 ILX		TYPE TTX40	TYPE TTR	TYPE TPX			
S50HR1C2	S50PR1C2	T36PR1C1	T36PR2C2	T36DR1C1	T36DR2C2	T40DR2C2T	T40DR2C2T	S44PR1C2Q1Q2M			
TYPE TTX46	TYPE STOCKCAR					OPTIONAL PARTS					
T46PR1C1MT	OTJ	CCJ	LMJ	LMP	ILX	WCJ	BLOW OFF PISTONS FOR TTX36/TTX36IL(ILX)	BLOW OFF PISTONS FOR TTR	SPRING SEAT KIT	BLOW OFF KIT FOR TTX46 MT MKII	LINEAR DISPLACEMENT SENSOR KIT FOR TTX46 MT

# RACING





## RACING



## TTR

Ohlins TTR damper – a 4-way fully independent adjustable damper based on well proven technology that has been behind winning success for many years in high-end factory racing in IndyCar, Le Mans and DTM. This high end racing damper is now available for teams seeking optimal performance and on-track success.

Features include a precise valving system, both high and low speed can be zeroed externally to ensure an accurate matching between dampers while at the same time maintaining reference clicks. The TTR damper combines top performance with user friendly handling, for instance change valving in close to one minute. The damper also comes with valving simulation software, drastically reducing time from idea to ready damper and helps making accurate adjustments at the track.

### FEATURES

- 4-way fully independent adjustable damper
- Solid piston
- Well proven valve technology
- Through-rod design to minimize hysteresis
- Large adjustment range
- Top performance combined with easy handling
- Change valving in close to 1 minute
- Comes with valving simulation software
- Precise valving system, both low- and highspeed can be zeroed externally





## TTX46 MT MK II

It has featured heavily in GT, sports car and touring car success and is accompanied by the TTX40. The concept of this damper features a 46 mm solid piston with a through rod of 30 mm, providing a rigid and lightweight strut. To further improve the rigidity, the outer tube is made from a special aluminium alloy.

It is four-way adjustable providing a wide range of adjustment without even taking the strut off the car. Of course it has all the benefits from a positive pressure build-up. As for the TTX40 this also comes with a Valving Reference Program. It's also available with a blow-off kit consisting of a new cylinder head prepared for the new kit, a valve block and a blow off adjuster. The blow off kit reduces peak loads, makes driving over curbs much smoother and in the end saves tires and reduces the risk for flat tires.

The damper can be modified to suit most of the different types of racing cars and covers a wide range of car types and models. The TTX46 is also available in a two-way adjustable version for some models, and in a club racing two-way adjustable version that together with the TTX36 creates a powerful Porsche combination.

### FEATURES

- TTX-technology – no cavitation risk • 46 mm solid piston, through rod 30 mm • 4-way adjustable • McPherson strut suspension • Valve Reference Program • Available with a blow-off piston kit • Also available as a two-way adjustable version



## TTX40 MK II

Ever since the introduction this high-end level racing damper has been a winner in top level racing around the globe.

The TTX40 MkII twin tube damper features a 40 mm solid piston and a through rod shaft which eliminates the requirement of an external reservoir. The design is fully pressure balanced with a positive pressure build-up throughout the adjustment range, eliminating the risk for cavitation as well as enabling the use of low gas pressure, keeping the internal friction at bay. The top eye can easily be re-locked without opening the damper.

The TTX40 MkII is a fully independent four-way adjustable damper. The MkII version also comes with a Valve Reference Program. This computer model of a dyno will allow you to find damping curves without a dynamometer. It reduces building time tremendously and allow exact damping adjustment out in the pit lane.

The TTX40 MkII is also available with a Blow Off piston kit. The advantage with this kit is that it reduces peak loads. This makes driving over curbs smoother, saves tires and reduces the risk of getting flat tires.

The damper can be modified to suit most of the different types of racing cars and covers a wide range of car types and models. The TTX40 is also available in a two-way adjustable version for some models.

### FEATURES

- TTX-technology – no cavitation risk • 40 mm solid piston • 4-way adjusted, compression and rebound
- High end racing damper • Comes with Valve Reference Program • Available with a blow-off piston kit • Suitable for Le Mans style prototypes, single seaters, touring cars, sports cars and GT-cars





## TTX36 INLINE

The TTX36 is a popular choice, especially for GT-cars and prototypes as well as in single seater applications.

This version with an inline reservoir is particularly well suited for cars where size and fitment is an issue. The damper has an inline reservoir with improved internal oil flow and is of a non-through rod type. The configuration out of the box is 2-way adjusted; 1-way compression and 1-way rebound, but is easy to upgrade to become 3- or even 4-way adjusted.

The big advantage with the damper is the integral reservoir that makes it very compact and easy to package and also be possible to use it in applications that do not allow external reservoirs. A length calculation program is also available. This program will guide you through the "build" of the damper and shows all parts needed to build a complete damper for your specific need.

Five lengths available. The length is measured without end- and top-eye.

### FEATURES

- TTX-technology – no cavitation risk • Integrated reservoir • 2-way adjusted, compression and rebound
- Possible to upgrade to 3- and 4-way adjustable • Compact design • Length calculation program available
- Available in different lengths • Suitable for single-seaters and historical racing and vehicles where external reservoirs are not allowed or can be fitted



## TTX36 PIGGYBACK

The TTX36 is also available in a piggy back version with an external reservoir. Still with a compact light weight design this versatile racing shock absorber is 2-way adjustable that can be upgraded to 3- and 4-way adjusted.

It's one of our most versatile dampers and is used for many different applications for spanning from single-seaters and GT-cars to touring cars, sports cars and prototypes.

### FEATURES

- TTX-technology – no cavitation risk • Piggy back • 2-way adjusted, compression and rebound • Possible to upgrade to 3- and 4-way adjustable • Compact design • Length calculation program available • Available in different lengths • Suitable for a wide range of cars from GT- and sports cars to single seaters, touring cars and prototypes



# RALLY & OFFROAD





## ALR TPX/TTX RALLY & RALLYCROSS

They have proven themselves in the toughest of conditions. This range with a set of universal struts and dampers are aimed at the rally and rallycross markets but they are also suitable for racing applications, especially for demanding circuits such as the Nürburgring Nordschleife.

The strut is a twin piston McPherson strut (TPX44) with a 44 mm diameter piston. It is three-way adjusted, one-way rebound and two-way compression.

The damper is a four-way adjusted twin tube (TTX44) damper. The rod adjuster is a coarse rebound adjuster, while the single adjuster in the cylinder head is a fine tuner with a two-way compression adjuster. The damper has a 44 mm piston.

Both are fully pressure balanced, eliminating the risk of cavitation and due to low gas pressure they keep the internal friction level minimized. There is a whole range of optional parts to tailor the dampers to any specific needs. The dampers can be built and modified for more or less any rally or rallycross vehicle and has been winners since the launch.

### FEATURES TPX

- McPherson strut • Piggyback reservoir • 44 mm Twin Piston Technology (TPX) • 3-way adjustable • Fully pressure balanced • Progressive Damping System (PDS)

### FEATURES TTX

- Conventional shock • Piggyback reservoir • 44 mm Twin Tube (TTX) • 4-way adjustable • Fully pressure balanced • Progressive Damping System (PDS)



## GROUP N/R4

The rally class R4 was created to make Group N machinery competitive against the S2000 cars. For this class Öhlins has developed the Group N dampers to also suit the Subaru and Mitsubishi R4 cars. The front strut is a Twin Piston McPherson strut with a 44 mm diameter piston, three way adjusted with one-way rebound and two-way compression. The rear damper is a Twin Tube TTX44 with a 44 mm piston and it's four-way adjusted.

Both front and rear are fully pressure balanced, eliminating the risk of cavitation and due to low gas pressure they keep the internal friction minimized.

### FEATURES

**FRONT** • TPX44 McPherson strut • 44 mm twin piston • PDS (Progressive Damping System) • 3-way adjusted, one way rebound and two way compression

**REAR** • TTX-technology - no cavitation risk • TTX44 Twin Tube shock absorber • 44 mm single piston • PDS (Progressive Damping System) • 4-way adjusted, two way rebound and two way compression



## ORQ 18/50

A high performing Off-road damper in the Öhlins ORQ series.

The ORQ 18/50 is suitable for off-road and rally raid and features a 50 mm piston and a 18 mm piston rod. The whole design is very robust to withstand the high forces and demands presented in off road such as rally raid and similar events. Details such as ball joint and the rebound adjustment has been reinforced and dimensioned for this application. The ORQ 18/50 also features the new improved PDS, Progressive Damping System, featured on Öhlins rally dampers.

It is available in three lengths but it is also possible to custom build dampers with up to approx. 350 mm stroke. PDS components, adjustment rod and length calculations program are available as well. Piggy back cylinder head will be available as optional component which makes it possible to rebuild a hose damper to Piggy back.

### FEATURES

- 50 mm piston • 18 mm piston rod • PDS, Progressive Damping System • Three way adjustable, two way compression and one way rebound • Robust design • Light weight aluminum body • Available in three lengths
- Also possible to custom build up to 350 mm stroke • Piggy back cylinder head available as optional component to rebuild a hose damper to piggy back version



## ORQ 16/46

The ORQ-series Off-Road damper has proven a success in all kinds of Rally Raid events. The damper has a swiveling hose, for increased flow potential for easy mounting on the vehicle.

The ORQ range of dampers is designed with Off-Road and Rally Raid Cars in mind, as well as similar kinds of vehicles where this layout is suitable. These dampers are available in three different lengths. The dampers are of 46 mm piston type with remote reservoirs. They have compression and rebound adjusters together with the Progressive Damping System, PDS. The damper comes with a protecting sleeve and two circlips to help prevent spring wear. Springs, spring platforms and spacers for the spherical bearings need to be ordered separately.

### FEATURES

- 46 mm piston • Remote reservoirs • Available in three different lengths • PDS, Progressive Damping System
- 2-way adjustable



## HISTORIC RALLY

Based on Öhlins extensive kit system a number of applications for historic rally are now available. The latest versions includes the Porsche 911 Historic Rally car and applications for the Ford Escort Mk1/Mk1i.

The 16mm piston shaft on the Escort dampers are hollowed with a valve and jet making it externally adjustable, with one adjuster for both compression and rebound. The design of the front damper has been made so it fits both the Mk1 and Mk1i versions of the car. The 46 mm rear shock is also adjusted for compression and rebound through one adjuster and both front and rear dampers has a temperature compensating system.

As with all Öhlins dampers these are rebuildable and it is possible to tailor make settings depending on drivers preferences and type of use. These dampers has already shown top performance in various Historic Rallies.

The Porsche dampers are available in an non-adjustable and an adjustable



version. The non-adjustable version is based on a 40mm cylinder tube that fits into the original Porsche McPherson outer tube. The piston shaft is 12 mm and has a balanced setting developed for both Tarmac and Gravel. The product is classical Öhlins and therefore completely rebuildable and possible to tailor make settings for. The adjustable version has a 16 mm piston shaft hollowed with a valve and jet that is externally adjustable. This one adjuster adjusts both compression and rebound with the use of a bleed system and also has a temperature compensating system. It is also fully rebuildable and possible to tailor make settings for. The rear shock has a 46 mm damping piston together with a 16 mm piston shaft with compression and rebound adjustable with one external adjuster. This design also has the temperature compensating system and is of course rebuildable and possible to tailor make settings for.

This combination of Öhlins front and rear has already shown top performance in various Historic Rallies.



# STOCK CAR





## WCJ

This high performance light weight stock car shock absorber is designed for use in Asphalt oval series in anything spanning from the highest series in NASCAR to Late Model. It features as a regular winner in NASCAR.

### FEATURES

- Light weight aluminum body • Large reservoir for improved cooling • Quick response for better handling
- Consistent on long runs • Easy to dial in, reshim, rebuild and service • Infinite valve and piston combinations
- Options include a variety of different pistons, one-way shaft jets, parallel compression valve and base valve



## OTJ

A new shock absorber for oval track racing replacing the STJ.

### FEATURES

- Adjustable or non-adjustable • Light weight aluminum body • Large reservoir for improved cooling • Easy to dial in, reshim, rebuild and service • Infinite valve and piston combinations • Options include a variety of different pistons, one-way shaft jets and base valve



## ILX-SERIES

The design of the TTX36 Inline with the compact design and with an inline reservoir makes it suitable for asphalt oval racing.

### FEATURES

- TTX-technology – no cavitation risk • Integrated reservoir • 2-way adjusted, compression and rebound
- Possible to upgrade to 3- and 4-way adjustable • Compact design • Available in different lengths • Used in asphalt oval racing as the NASCAR-series and Late Model





## LMJ/LMP-SERIES

Designed for use in Late Model and Modified but also for use in NASCAR Sprint Cup, Nationwide and Truck series. The LMJ & LMP-series are also available in Dirt oval applications for use in Dirt Late Model, Modified and Sprint racing.

The shock absorbers are two way adjustable with LMP available as a piggy back version and LMJ series in hose version with remote reservoir.

### FEATURES LMJ

- Late Model and Modified • Dirt and Asphalt applications • Light weight, aluminum body • 2-way adjustable damping • Easy to dial-in, rebuild, reshim and service • Available with several different piston options • Options include one-way shaft jets, parallel compression valve & two-way reservoir

### FEATURES LMP

- Late Model and Modified • Dirt and Asphalt applications • Piggy back version • BOB-R compression valve for increased adjustment range • Large reservoir for better cooling • Easy to dial-in, reshim, rebuild and service
- Large number of valve and piston combinations available • Options include One-way shaft jets to allow smaller compression or rebound valve • Optional parallel compression valve to allow for smaller rebound valve



## CCJ

An economical non-adjustable shock absorber for use in dirt oval racing and asphalt oval racing. The base stock car version is non adjustable and can be used in all forms of stock car oval racing.

### FEATURES

- Late Model and Modified classes • Dirt and Asphalt applications • Steel body • Easy to dial in, reshim, rebuild and service • Large number of valve and piston combinations available • Options include different optional pistons and one-way shaft jets





## OPTIONAL PARTS



## BLOW OFF PISTONS FOR TTR

The advantage with this Kit is that it reduces peak loads making driving over curbs smoother, saves tires and reduces the risk of getting flat tires.

There are two different Blow Off pistons 06234-20 and 06234-21, 06234-20 is a Blow off piston with no additional functions. The 06234-21 is equipped with Öhlins patented High Frequency function, HF. The Blow off piston force level is set with a shim stack.

## OPTIONAL PARTS



## SPRING SEAT KIT

New spring seat kits are launched which include bearings and helper springs. The kit is made for Öhlins TTR, TTX40, TTX36 and TTX36 Inline racing shock absorbers.



## BLOW OFF PISTONS FOR TTX36/TTX36IL (ILX)

The advantage with this piston is that it reduces peak loads. This makes the driving over curbs smoother, saves tires and reduces the risk of getting flat tires.

There are two different Blow Off pistons 06234-20 and 06234-21, 06234-20 is a Blow off piston with no additional functions. The 06234-21 is equipped with Öhlins patented High Frequency function, HF. The Blow off piston force level is set with a shim stack.



## LINEAR DISPLACEMENT SENSOR KIT FOR TTX46 MT

The TTX 46 McPherson strut for Touring cars has from the beginning been designed to be used together with a linear displacement sensor. You can now buy this sensor as a kit from Öhlins.

The sensor is mounted inside the piston shaft and it is not necessary to disassemble the strut to install it. It is well protected from dust and debris inside the shaft and is very easy to install. The type of stroke sensor is MLS130/150/S/N. The sensor is delivered without connector to make it possible to connect it to different data acquisition systems.



## BLOW OFF KIT FOR TTX46 MT MKII

This kit reduces peak loads, makes the driving over curbs smoother, which in the end saves tires and reduces the risk of getting flat tires.

The kits consist of two part numbers, left or rear headed adjuster:

- New Cylinder head prepared for the new kit
- Valve block, left or right hand headed kit
- Blow off adjuster



## ÖHLINS SHOCK COVERS

To prevent dirt, dust and mud from clogging up the shock absorber it can be dressed up with Öhlins shock covers. The flexible neoprene material is an effective blocker and it fits many different shock absorber types including McPherson struts.



## AUTOMOTIVE DISTRIBUTORS

### FOR MORE CONTACT INFORMATION

For full information about which models Öhlins products are available for, please contact your local Öhlins Distributor.

#### AFRICA

**KENYA** Aztek Motorsport International  
**MAURITIUS** Ruben Racing Limited  
**SOUTH AFRICA** VMP Motorsport

#### ASIA

**CHINA**  
BG-Performance Ltd.  
Gusto Technik Co  
**HONG KONG**  
Power Motorcycle Specialist  
Gusto Technik Co  
**JAPAN** Carrozzeria Japan Co. Ltd  
**MALAYSIA** Trans Techno Enterprise S/B  
**SINGAPORE** Sporting Motors  
**TAIWAN** Capricore Trading Co. Ltd.  
**THAILAND** D.S. Performance Product Co

#### EUROPE

**AUSTRIA** Öhlins DTC  
**BELGIUM** Öhlins DTC  
**BULGARIA** Öhlins DTC  
**CYPRUS** Öhlins DTC  
**CZECH REPUBLIC** Öhlins DTC  
**DENMARK** Gunnar Aaskov Competition Parts  
**ESTONIA** Autostils Technika OU  
**FINLAND** Öhlins Auto Norden  
**FRANCE** PFP Racing  
**GERMANY** Öhlins DTC  
**GREECE** Öhlins DTC  
**HUNGARIA** Öhlins DTC  
**IRELAND** Murray Motorsport  
**ITALY** Andreani Group International s.r.l  
**LATVIA** Motofavorits  
**LITHUANIA**  
UAB Juta  
UAB Proracing  
**LUXEMBOURG** Öhlins DTC  
**NORWAY** Öhlins Auto Norden  
**POLAND** P.T.M. Sp.zo.o.  
**PORTUGAL** Maxi Shocks  
**ROMANIA** Öhlins DTC  
**RUSSIA**  
Kajma Racing  
Master-Sport Ltd

**SLOVAKIA** Öhlins DTC

**SPAIN** Andreani MHS Iberica

**SWEDEN** Öhlins Auto Norden

#### SWITZERLAND

Artcars GMBH  
Rechsteiner Racing SA  
Supercharger.ch

**UKRAINE** Ascania Racing

#### UNITED KINGDOM

Aurok Ltd.  
Apex Performance  
BG Motorsport Ltd.  
Mick Gardner Racing  
Roger Clark Motorsport

#### NORTH & CENTRAL AMERICA

**CANADA** Öhlins USA Inc.  
**USA** Öhlins USA Inc.

#### PACIFIC

**AUSTRALIA** Steve Cramer Products  
**NEW ZEALAND** Kiwi Suspension Solutions

#### SOUTH AMERICA

**ARGENTINA** Öhlins USA Inc.  
**PERU** Öhlins USA Inc.



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