

MOTOREX

magazine

No. 78/29
August 2006

WHAT'S NEW

*New formula:
MOTOREX
DRY- and
WET LUBE*

MOTOR OIL

*Motor oils
for construc-
tion vehicles*

EXPORT

*KTM Team
Sarholz,
Germany*

INDUSTRY

*Perfect
harmony with
ORTHO NF-X*



www.motorex.com





"Customer service – part of a real premium product"

Dear readers and customers,

Hardly any other product invisibly performs such an eminently important service as a lubricant, unobtrusively working over thousands of miles or hours of operation. The quality of a lubricant is neither visible to the eye nor measurable by the hand. Ideal suitability to its purpose and lasting performance are a matter of trust. The engine or transmission designer's specifications must be compatible with those of the lubricant producer.

"It doesn't hurt to ask" – answers from the BUCHER-MOTOREX Group's customer service are free of charge! In our opinion, capable customer service is a substantial part of a premium product. Every day we answer technical questions concerning a wide range of applications. Your problem won't be endlessly rerouted through a computerized call center, but solved right away at the MOTOREX plant in Langenthal, where all the threads run together.

Another good example is the article on construction equipment in this issue. A complex topic, but one that our customer service and your MOTOREX partner can help make clear and understandable. This valuable service is free of charge to you as our customer and gives you the confidence that you've chosen just the right product.

We hope you'll find helpful ideas in this latest issue.

Arnold Zuppiger, Head of Technical Customer Service BUCHER AG LANGENTHAL



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Motor oil Construction machinery comprises a huge variety of vehicles. MOTOREX's construction vehicle specialists know which motor oil is right for each machine generation.

Photo: Sarholz



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Export The German Cross Country Motocross Trophy has met with great interest everywhere. MOTOREX is ideally represented by the Sarholz KTM Team Germany. A brief visit to the team in Germany.

Photo: Parker Hannifin



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No responsibility is accepted for printing errors or changes in the technical data.

Industry

Find out how neutral ORTHO cutting oils are when they come into contact with plastics and elastomers on pages 12 and 13.

IMPRESSUM

Editor:
BUCHER AG LANGENTHAL
MOTOREX Lubrication
CH-4901 Langenthal

Tel. ++41 (0)62 919 75 75
Fax ++41 (0)62 919 75 95

Customer service by phone. Advice and problem solving also in German, French and Italian.

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Also ideal for 4-MIX engines

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MOTOREX ATF DEXRON III H

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Also ideal for 4-MIX engines: MOTOREX ASPEN 2T

A new generation of engines has arrived. Known as 4-MIX engines, they are produced by such manufacturers as STIHL®. Unlike conventional four-stroke engines, which require separate fuel feed and lubrication systems, the new STIHL® 4-MIX engines use a two-stroke fuel mixture.

4-MIX engines are substantially lighter and more compact than conventional four-stroke engines; they run in any position, are quiet and have low emissions.

MOTOREX ASPEN 2T is ideal for the new design. The eco-friendly alkylate gasoline is free of lead, benzene, aromatic compounds, and sulfur. What's more, it can be stored for up to two years. Thanks to its low-residue combustion characteristics, the STIHL® 4-MIX engine's emissions are already over 25 percent below the EU small engine emission limits that will take effect in 2008!

Reformulated: MOTOREX ATF DEXRON III H

If the precision mechanics and transmission management of state-of-the-art automatic transmissions are to work together effectively, the transmission fluid must play its part. Just as an automatic transmission needs intelligent electronics, so it needs perfect lubrication from the right automatic-transmission-fluid (ATF) to transmit the enormous forces in play.

MOTOREX ATF DEXRON III H is an outstanding achievement for the MOTOREX chemists and engineers who developed it. It is suitable for all automatic trans-

missions requiring DEXRON III or lower quality fluids and exhibits exceptionally stable friction characteristics and enhanced oxidation stability.

It ensures improved shifting quality during its entire service life.



Photo: MB

On the road to success: collaborating with YAMAHA

Even now, it's not too soon to declare the collaboration between MOTOREX and YAMAHA Motor Germany a resounding success. Not only can YAMAHA's professional riders be found on the winner's podium after every race, but the experience gained in these races has led MOTOREX to a second decisive step in the evolution of its new high-performance 4 stroke motor oil.

The photo shows Australian YZF-R6 rider Kevin Curtain at YAMAHA's engine test bed. The performance figures, of course, are a well-guarded secret. But we can say this much: with the latest formulation of the MOTOREX custom-made motor oil, the performance trend of YAMAHA's racing engines is clearly rising...



Photos: YAMAHA



Dustin Miller

Motocross spectacle at Zurich's Hallenstadion

Europe versus USA. Freestyle motocross has become a rising star in the action sport skies. On May 19 and 20, Zurich's Hallenstadion saw bold, fearless freestyle motocross riders flying through the air on motorcycles, reaching heights of up to 15 meters, playing fast and loose with the laws of gravity, showing off "sick tricks," and gathering "big air" points. As if these leaps through the air were not breathtaking enough, the requirement of landing safely on both wheels presents an even more incredible challenge.

The Hallenstadion event was an ideal opportunity for MOTOREX to show its involvement with this "challenge the limits" sport: alongside the 13,800 fans, MOTOREX was represented very well at the event. And MOTOREX motor oils were there too in many of the engines of these "flying" motorcycles, helping provide the power to launch themselves to dizzying heights. What a sight!

See www.hardcorefm.ch for photos.



Photo: KTM

Runs well, sells well: KTM Adventure 990/S

The new KTM Adventure 990/S, at KTM dealers since the start of this year, boasts 999 cc displacement, nearly 100 HP and pleeeenty of torque. It not only looks good, it also sells well.

As KTM's partner, MOTOREX is doing its part in the successful introduction of the new cycle with its CROSS POWER 4T SAE 10W/50 motor oil. MOTOREX is KTM's official worldwide lubricant partner and communicates closely with the plant in Austria.

Especially in "heavy" motorcycles, the sensitive clutch response provided by the carefully balanced package of additives in CROSS POWER 4T is a big plus. A double masterpiece! www.990adventure.com

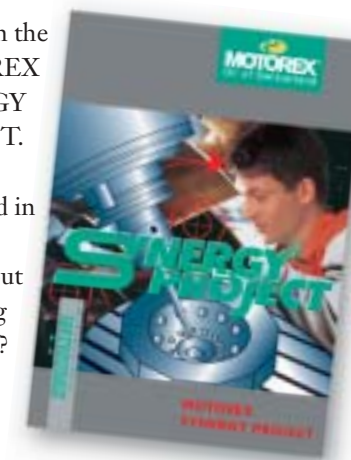
Rendezvous in Moutier: the 10th SIAMS

For decades, the small town of Moutier in the Swiss Jura has been a center of excellence for precision turning. In mid-May, industry pros in automation, machine tools, and the supplier industry met there for the 10th time at the SIAMS 2006 trade show.

MOTOREX AG LANGENTHAL was represented in Moutier by highly motivated staff at an attractive booth. In addition to engaging in intensive networking, MOTOREX won admirers with its new SWISSCUT ORTHO NF-X generation of cutting oils. There was also strong

interest in the MOTOREX SYNERGY PROJECT.

Interested in learning more about exploiting synergies?



Ask Ms. Mock for the informative SYNERGY PROJECT booklet by e-mailing sibylle.mock@motorex.com



5 new MOTOREX products in spray form

Fourteen high-quality sprays in a new design brighten up the mechanic's day – and now the MOTOREX Spray line boasts five new products. Have you checked your supply of these practical helpers-in-a-can recently?

Here are the new products at a glance:

INTACT MX 50

Fully-synthetic lubricant for professional use in industry. 500 ml

GREASE SPRAY

High-quality high-viscosity grease spray. The modern alternative to the grease brush. 500 ml

TEFLON® SPRAY

Teflon® dry lubricant. A universal slip agent, release agent and lubricant. 200 ml

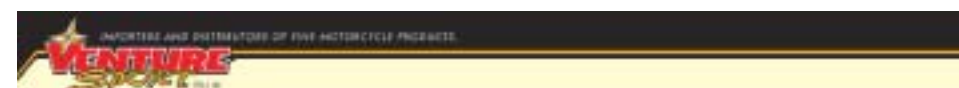
TOOLGUARD

Protects and preserves all metal surfaces. Forms a dry film ensuring a secure grip. 500 ml

PROTEX

Impregnates and effectively protects all textiles and leather against moisture and oil. 500 ml

Ask your MOTOREX partner for the new spray leaflet!



MOTO LINE goes to South Africa

MOTOREX's MOTO LINE has met with especially strong interest and steadily growing international sales. Thanks to MOTOREX's close collaboration with KTM and a strong commitment to motor sports, customers are increasingly asking for MOTO LINE products by name. For example, MOTO LINE has been on the South African market for about two years and is selling well.

As importer and distributor, VENTURE SPORT brings its broad knowledge to the table. The company offers a wide array of accessories to the South African public.

VENTURE SPORT also has excellent contacts in the South African motorcycle dealer network. Based in Johannesburg, the company distributes world class brands in the motorcycle industry such as ALPINE-STARS, SCOTT USA, ACERBIS, MOTOREX and many more.



The BIKE LINE has successfully withstood innumerable tests in recreational and competition cycling. Thanks to systematic continual development of the DRY- and WET LUBE chain lubricants, new formulas now provide unprecedented features.



Success reformulated: **DRY- and WET LUBE**



Most of the MOTOREX BIKE LINE lubricants and care products are rapidly biodegradable.



Pro mechanics like Alex Roussel (I.) at the Centre Mondial du Cyclisme in Aigle rely on the pioneering BIKE LINE.

A modern chain lubricant must meet a wide range of requirements: it must quickly penetrate to the most inaccessible corner of every element of the chain, form a highly pressure-resistant lubricant film, adhere well, and protect the chain against wear and especially corrosion even after contact with solid particles such as dust or sand. In purely chemical terms, penetration and adhesion are mutually contradictory properties – but not for MOTOREX DRY- and WET LUBE! MOTOREX's improved, sophisticated formulas with new ingredients set a new milestone in bicycle chain lubrication.

MOTOREX DRY LUBE: with a new wax/oil formula

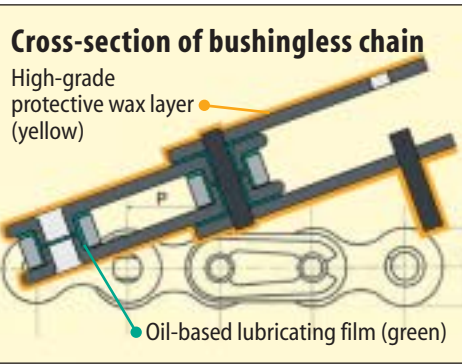
The new MOTOREX DRY LUBE combines all the advantages of wax-based and oil-based chain lubricants for dry, dusty conditions, but without the usual disadvantages of pure wax-based formulas.

The harmonious combination of the oil and wax components gives the lubricant good creep characteristics and enables it to penetrate the chain extremely quickly. Within a few minutes, the wax components form an even surface that protects the chain against dirt and dust. Beneath this

protective layer is a highly pressure-resistant lubricant layer that measurably reduces friction and provides highly effective protection against corrosion and wear.

The best of both worlds

In this innovative formula, MOTOREX's development labs have succeeded in combining the “best of both worlds,” oil and wax, in a single lubricant. Pure wax compounds are known for their tendency to flake off when fully dry and offer insufficient protection against corrosion. After applying MOTOREX DRY LUBE you'll feel like you're riding a different bike, with easier, faster and more precise shifting.



MOTOREX WET LUBE: perfectly lubricated, even in rain

MOTOREX WET LUBE is the ideal lubricant for all bicycle chains and shifters in wet conditions. It is highly water-repellent, has excellent adhesiveness, and is highly effective in protecting against corrosion and wear. Its extremely high adhesiveness also makes WET LUBE ideal for long-term everyday use. MOTOREX WET LUBE uses a new formula that draws on the advantages of a high-quality ester-based synthetic oil. An innovative, thermostable adherence additive ensures that the lubricant continues to perform perfectly on the chain and shifter under all operating conditions. Only cleaning the chain with MOTOREX EASY CLEAN quickly and permanently removes the lubricant. WET LUBE is also ideally suited for on- and off-road racing.

Racing-tested and eco-friendly

Both products, MOTOREX DRY- and WET LUBE, are the results of MOTOREX research augmented by

valuable input from real-world testing and use by successful international racing teams such as the Multivan Merida Bike Team, Team Swiss Koxs, Team Scott Allianz and Team Stöckli. Both lubricants are eco-friendly and biodegrade rapidly – an important selling point for the eight out of ten cyclists who prefer biodegradable lubricants!

The current BIKE LINE covers all cyclists' cleaning and lubrication needs. Further information is available any time from your MOTOREX partner or directly from BUCHER AG MOTOREX in Langenthal.



Rain can't harm a chain lubricated with WET LUBE! Special adhesion additives provide all-round protection.

MOTOREX DRY LUBE	MOTOREX WET LUBE
Highly dust and dirt repellent	Highly water-repellent
Powerful protection against corrosion and wear	Excellent adhesion
Excellent penetration and creep	Powerful protection against corrosion and wear
Optimized shifting	Excellent penetration and creep
Tested successfully in racing	Optimized shifting
Good material compatibility	Good material compatibility
Biodegrades rapidly	Biodegrades rapidly

The right motor oil



for every construction vehicle!



Extremely small particles with a diameter of less than 10 microns (PM 10) can be easily captured by modern particulate filters!



The pros change not only the oil but also the all-important oil filter after every 500 hours of service.

Construction machinery likely comprises the widest variety of any vehicle category. There is a specialized machine for practically every task – and MOTOREX has the right motor oil for each of them.

Excavators, front-end loaders, dump trucks, vibratory rollers, trenchers, and others – all are powered by four-stroke engines and require regular oil and filter changes at the intervals prescribed by the manufacturer. Fleet managers often ask, “can I use the same motor oil in a 20-year-old AWD dumper that I use in the crawler excavator with diesel particulate filter we just bought?” The short answer: there are so-called “all-fleet oils” that can meet the needs of a very broad range of machinery of different generations. Still, it’s a good idea to check with the MOTOREX customer service to make sure.

A special case: construction equipment with particulate filters

Engineering vehicles can be roughly categorized into those with and without diesel particulate filters. Equipment with particulate filters requires lowSAPS (low sulfate ash, phosphor and sulfur) lubricants that protect engines against deposits and keep exhaust treatment systems working at high efficiency for longer. That’s why MOTOREX’s motor oil developers had to sharply reduce SAPS content and repro-

duce the positive, desired characteristics of the SAPS additives with a fundamentally new additive technology. The result is the MOTOREX FOCUS 4 LowSAPS motor oil at SAE 10W/40 viscosity, which meets tomorrow’s Euro 4 and Euro 5 emission standards today. If you’re planning on equipping a piece of machinery with a diesel particulate filter, you should first consult with MOTOREX whether you can continue to use the motor oil you’ve been using.

Tailored for each engine generation

The MOTOREX motor oil range for construction equipment consists of five motor lubricants of different composition. MOTOREX can create a lubrication plan for your vehicle fleet, which greatly simplifies maintenance. The lubrication plan shows which piece of equipment should be lubricated with which products and when. Ask your representative.

Your MOTOREX partner or our customer service department will be glad to provide further information and qualified advice on all your construction equipment’s lubrication needs.



INTERIOR CLEAN creates added value

Although customers may not always notice freshly completed maintenance work, they are sure to know when their vehicle interior has been cleaned with MOTOREX INTERIOR CLEAN. They’ll be able to see it and smell it!

All conscientious vehicle owners make sure they adhere to the prescribed maintenance intervals. Auto shop professionals can make their work immediately apparent to customers by cleaning and valeting their car. Interior cleaning is a particularly appreciated part of the service.

Added value from interior cleaning

Cleaning a car interior obviously entails a fair bit of work – but by choosing the right products from the CLEAN & CARE range you’re guaranteed success in a very short time. MOTOREX INTERIOR CLEAN spray foam cleans upholstery, carpets and plastic thoroughly yet gently, leaving a silky matt, antistatic finish.

INTERIOR CLEAN also leaves an unobtrusive, yet immediately noticeable scent of apples. What’s more, a novel active agent permanently eliminates unpleasant odors. This is a particularly useful way of keeping second-hand cars fresh even if they are left with their windows closed for lengthy periods.

Simple and fast to use

This is how easy it is to use INTERIOR CLEAN. Shake the can, apply the spray, leave the foam to act for three minutes and then rub dry with a damp cloth or sponge. The foam is biodegradable and can be purchased in 500 ml cans or in bulk containers of 4 or 25 liters.

The MOTOREX CLEAN & CARE LINE also includes a further ten vehicle cleaning and care products. The products’ extremely high effectiveness and innovative containers set new standards.

The way to keep customers coming back

Cleaning with INTERIOR CLEAN is the perfect way to show your customers that their vehicle has been thoroughly and conscientiously serviced. This important selling point virtually guarantees that they will be back!



INTERIOR CLEAN is suitable for all materials. It is fast acting and leaves a pleasant, clean scent.



Vehicle interiors use a wide range of materials. INTERIOR CLEAN cares for and cleans them all.

Photo: VW

The name Sarholz has a long tradition in Germany, as does its alliance with MOTOREX. This time the German team has four highly motivated top riders competing on KTMs.



Wyatt Avis

A strong showing: The Sarholz Germany KTM team



A strong presence in Germany – the Sarholz KTM team has a promising rider in almost every category.



Racing soon reveals whether a lubricant can live up to its promises. Racers can depend on MOTOREX MOTO LINE products!

The unlicensed German Cross Country Championship, a blend of enduro and motocross racing for large starting fields ranging from ambitious hobbyists to seasoned pros, has been taking place since 2001. Divided into seven classes, the championship has grown to become a major success. Over a thousand active participants have registered in Germany this year. The promoter has now established a series of races in Austria, Italy and the Czech Republic as well. At the end of the season racers from each country will square off at the European Cross Country Championship in Schefflenz, Germany.

A long motocross tradition at Sarholz

For over 30 years, team leader Burkhard Sarholz has had just one great motor sport passion: motocross. His list of triumphs is a long one. Sarholz is now entering the 2006 XCC season on a KTM with factory support – a new highlight for the team from the Westerwald region of western Germany.

Norbert Zaha, general manager of KTM Sportmotorcycle GmbH, Germany, presented KTM Germany's strategy at a recent press conference: "In Sarholz we have a German team with up-and-coming

German riders who, given the right support, have great potential and the ability to reach the world's top ranks." The Sarholz KTM team will compete for titles at the European Cross Country Championship XCC, the ADAC MX Masters and the Motocross World Championship.

MOTOREX supports XCC 2006

MOTOREX regards the Cross Country Championships as an ideal platform for introducing the pioneering lubricants and care products of its MOTO LINE to up-and-coming riders. Especially popular among participants is the MOTOREX Racing Service, which provides advice and assistance to racers on location and distributes coupon books with discounts on a wide range of MOTOREX products to championship racers registered for the first round.

Meanwhile all eyes are on the Sarholz KTM team riders: will Max Nagl and Marcus Schiffer make it to the top 10 in the MX2 World Championship? And how will Wyatt Avis do in the MX1 World Championship? How about Andy Boller in his various MX3 championship races? For the latest updated information see www.motorex.com, www.ktm-sarholz.de and www.baboons.de.



MOTOREX BIKE LIFT range

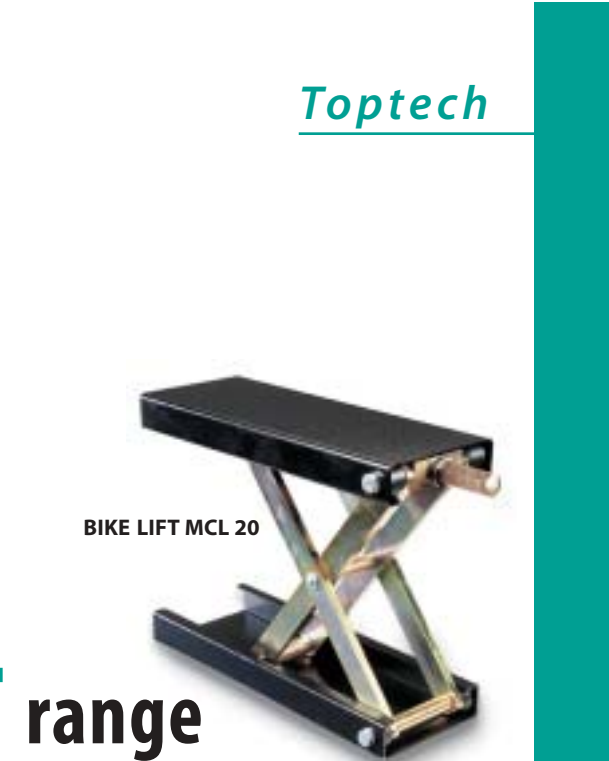
The times when motorcycle mechanics worked at a leisurely pace with improvised tools are long gone – top professionalism and efficiency are in greater demand than ever.

It is increasingly common today for motorcycle maintenance and repair to be performed within a defined time frame. Especially when the weather is warm, meeting customer deadlines is a must. With its new MOTOREX BIKE LIFT range, MOTOREX-TOPTECH has a complete cycle shop equipment program offering high quality at an affordable price.

Premiere: motorcycle lift platforms in MOTOREX green

The two MOTOREX BIKE LIFT platforms BIKE RACING 350 and BIKE SUPER MAX 500 GATE are immediately recognizable by their distinctive MOTOREX green coloring. BIKE LIFT products are well-established on the international two-wheeler market and enjoy an excellent reputation.

Technical data	BIKE RACING 350	BIKE SUPER MAX 500 GATE
Capacity	350 kg	500 kg
Vertical travel	1,000 mm	1,300 mm
Platform	2,000 x 600 mm	2,100 x 750 mm
with side extensions	2,000 x 840 mm	2,100 x 990 mm
Actuation	foot pump	electro-hydraulic 230 V
Expansion flap	no	yes
Drive-on ramp	yes	yes



BIKE LIFT MCL 20



The practical BIKE LIFT BIKE HANDY-X-LIFT 160 motorcycle jack is ideal for off-road bikes, e.g. at the racetrack.



The electro-hydraulic BIKE LIFT SUPER MAX 500 GATE. The side extensions are especially handy.

Many different types of plastics and elastomers (e.g. seals) are used in modern machine tools. MOTOREX had the compatibility of its ORTHO cutting oils tested and, together with machine tool manufacturers, defined the requirements for all plastics used.



Photos: Parker Hannifin®

Perfect harmony: MOTOREX ORTHO cutting oils



The cutting oil must not, under any circumstances, soften the plastics and elastomers or create an excessive increase in volume.



In the Parker® test an HNBR test bar was stored in the cutting oil before the bar was subjected to a precisely defined test.

Although the cutting oil is only actually needed at the point of action where tool and workpiece meet, a low oil-mist machining fluid spreads into other parts of the machining center over time even despite complete encapsulation. On the one hand, this protects all metallic surfaces and parts, but it also means direct contact with plastics, paints and electrical components. The members of MOTOREX's "Seals and Plastics" synergy project were particularly interested in the compatibility of the company's ORTHO cutting oils with plastics and elastomers.

Independent laboratory test at Parker Hannifin®

Parker Hannifin GmbH & Co. KG, a leading seal manufacturer, operates an independent test laboratory in Bietigheim-Bissingen, Germany, that is accredited to DIN EN ISO/IEC 17025. Two types of ORTHO cutting oil were tested there for their compatibility with SRE elastomers NBR-1 and HNBR-1 (see box for definition on page 13) to the strict ISO standard 6072.

The compatibility of non-metallic materials with the cutting oil used is of major im-

portance, because it is no use to the operator if he achieves outstanding cutting performance, tool life and surface qualities but uses a machining fluid that causes problems of compatibility with parts made from plastic and elastomer.

What is meant by optimum compatibility?

The two central parameters of the Parker® test as regards compatibility with elastomers are also in keeping with real-world requirements, as they relate to the **hardness**, measured in Shore, and the **volume** of the elastomer. Hence a seal covering a cable connection on an electric motor must not stretch excessively or become brittle under the influence of oil mist. The test is comprehensive and checks specific weight, tensile stress, tensile strength at break, and percentage elongation at break etc. It also determines the limiting values within a narrow tolerance band. The Parker® test uses the measured values of a naturally "mild" HLP hydraulic oil as a reference basis. It would go well beyond the scope of this article to reproduce the test results in whole or even in part.

A test result without the "ifs and buts"

The two tested high-performance cutting oils, MOTOREX ORTHO NF-X 15 and NF-X 46 Hydro, fully meet the requirements of DIN 51524-2. From this it can be concluded that all materials that are suitable for HLP hydraulic oils are also suitable for use with the cutting oils from the MOTOREX ORTHO family.

The knowledge obtained from the test also applies to MOTOREX's novel additives package, which is used in the ORTHO cutting oils. It is highly efficient in conjunction with the selected basic oils, especially at elevated operating temperatures, but still very "mild".

Elastomer seals may only expand or shrink by a clearly defined percentage rate. Similarly, polyurethane pipes must not become brittle or fragile under the influence of the machining fluid.

As a result, flawless surface finishes are obtained and all components that come into contact with the machining fluid are protected.

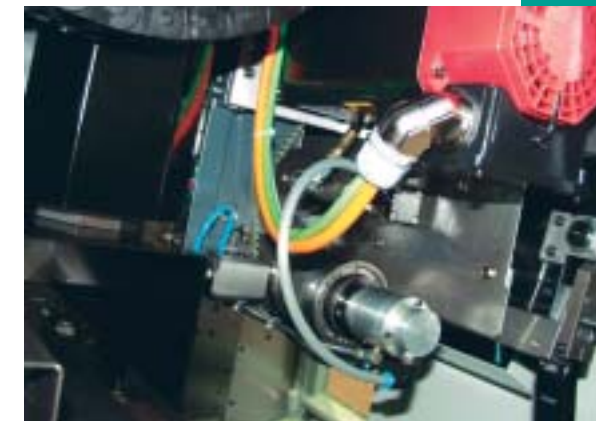
Synergies used and specifically communicated

Only by openly communicating the test results and the knowledge gained can the user also finally derive real benefit. This is why MOTOREX has disclosed all the information from this synergy project to the machine and seal manufacturer. As a result it has been possible to specifically develop problem components and employ optimized sealing materials.

Would you like to find out more about cutting oil compatibility with plastics and elastomers? If so, please contact us.



MOTOREX ORTHO's balanced additives package prevents expensive damage such as softened plastics.



All electrical connections in a modern machine tool are scrupulously sealed and protected.

The Parker® test

The chemical laboratory of the Parker Packing Division® is accredited as a test laboratory for a large number of test procedures, including procedures for the manufacture, testing, analysis and damage analysis of parts made from high-polymer materials, in particular elastomers, to EN ISO/IEC 17025.

In a standard test procedure, two different SRE elastomers were tested for 7 days at a temperature of 100° C.

The test specimens were made from the following materials:

NBR-1	(Acrylonitrile Butadiene Rubber)	= Acrylonitrile Butadiene Rubber (standardized to ISO 1629)
HNBR-1	(Hydrogenated Acrylonitrile-Butadiene Rubber)	= HNBR mixture from which sheets are produced for test purposes. This is also known as a standard reference elastomer (standardized to ISO 6072)



Pascal's soapbox: tinkering, racing, and lots of fun.

For the past five years, 15-year-old Pascal Gehrig of Neu St. Johann, Switzerland, has devoted his free time to his great passion, the soapbox. And with huge success! This year Pascal will enter the LISTA Soapbox Derby Switzerland as 2005 runner-up for his age group, with every intent of making a strong showing in all 21 races this year. Each race counts toward the Swiss Soapbox Cup and also as a qualifying run for the Swiss Soapbox Championship.

Pascal is a big MOTOREX fan and knows just how to give his racer the right speed while staying within the rules: "Keeping it

clean and well-oiled is sure to squeeze out an extra tenth of a second somewhere!" says the driver before getting back to applying the right spray lubricant to the ball bearings in his wheels. But once he reaches age 16 Pascal will have to find a new interest – according to the rules, it'll be time to hang up his soapbox helmet because he's "too old."

We wish Pascal and his team a successful season and all the best when Pascal starts his auto mechanic apprenticeship this fall.



Photos: Pascal Gehrig



Do you **know** about... ...the super fast machine tools from CHIRON?



Photo: CHIRON

"Using synergies with focus" is the motto of the MOTOREX SYNERGY PROJECT. The MOTOREX machining fluids of the Vmax generation were developed in close collaboration with leading companies in various segments of the metal processing and machine tool industries. These innovative cutting oils and coolant/lubricants make a positive contribution to high-speed machining operations and enable high-precision cutting. "Seconds ahead" – whether in changing tools or in mass production – is where users of machine tool manufacturer CHIRON's

state-of-the-art high-speed machining centers will be. CHIRON offers customers worldwide high-quality machining of complex workpieces at the lowest cost per piece. CHIRON started out as a craftsman's workshop in 1921. Today, it is an international technology and market leader with its CNC-controlled vertical machining centers and the turnkey solutions based on them.

For more information see www.chiron.de

chiron
CNC-FERTIGUNGSZENTREN



7

MOTOREX
Oil of Switzerland

good reasons to use MOTOREX SWISSCOOL 7788

- 1 Suitable for all materials.
- 2 Absolutely low-foam, even at extreme pressures, in all processing types (done in one) and at all water hardness levels.
- 3 Reduced costs thanks to measurably higher tool and emulsion service lives and ideal COD.
- 4 Extremely safe for skin because free from boron, amines and formaldehyde. Fulfills stringent EU Biocide Directive 98/8/EC as well as all pertinent Japanese standards.
- 5 Low consumption due to reduced reconcentration requirement of only 0.5 to 1.4%.
- 6 Optimum corrosion protection ensures problem-free easy intermediate storage of workpieces.
- 7 Outstanding flushing performance, resulting in optimum machine cleanliness.

**Try it now –
success guaranteed!**



SPORTING AND SWISS...

...the new MOTOREX design watches. As soon as you see them, you will be delighted with these swiss-made watches.

Design Sport Chrono

High-quality ISA quartz movement with hour, minute and second hands, chronograph function for 30 minutes and date. Shock-proof. Stainless steel casing (40 mm dia.) with screw back and mineral crystal. Modern leather strap. 24-month guarantee. Attractive gift presentation packaging (made of metal).

Article No. 4.18

Design Watch Fashion Limited Edition!

Elegant quartz watch. Gold-plated movement. Hour and minute hands, date display. Shock-proof. Casing made of stainless steel (36 mm dia.), satin finish with mineral crystal. Modern leather strap. 24-month guarantee. Attractive gift presentation packaging.

Article No. 4.19