



fives dms

Designing today the plants of the future.

Tomorrows technology, today.

Q8  **Oils**



fives dms

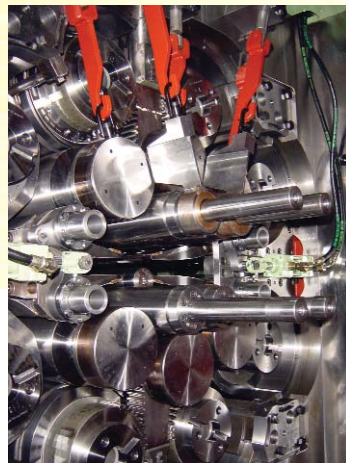
The world leader for 20 Hi cold rolling mills

As the world leader for 20 Hi cold rolling mills, Fives DMS uses its experience to provide reliable, high performance industrial solutions with new production units or modernization of existing locations. As a result of continual investment in new technologies and the proven experience of our teams to manage turn-key contracts, Fives DMS can offer complete tailor-made solutions, integrating innovative and efficient proprietary equipment for rolling mills and processing lines.



Fives DMS proven technologies include:

- 20 Hi Mills
- 20 Hi Twin housing Mills
- Z Hi Mills
- 2 Hi Skin Pass Mills
- 4 Hi Skin Pass Mills
- Process Automation and Control



Services:

Upgrading existing equipment including:

- Hydraulic gap control actuators
- Roll bending
- Closed loop shape control
- Mae west housing blocks
- Side shift work roll changer
- Electrical upgrade

Q8Oils:

Fives DMS are pleased to have Q8Oils as our lubricant partner. It is Q8Oils product and application knowledge, laboratory and research capabilities and world wide presence, that make Fives DMS believe the partnership will lead to benefits for the customer. Together, we can offer the best support in all areas of production and productivity. It is Q8Oils commitment to invest in rolling oil technology and related lubricants, that will help guarantee the long term profitability of our customers.

Rolling mills are continually evolving due to the economic and environmental challenges facing the industry. As processes are adapted, so the performance demands on the rolling oil increases.

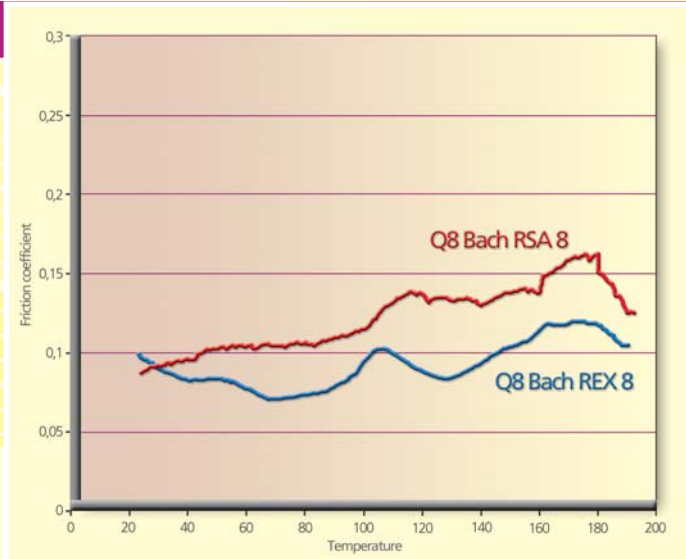
Thirty years ago, Q8Oils started to develop new rolling oils with our industry partners and identified a need for low viscosity oils as the cooling of the strip is far superior when compared to high viscosity products.

Combining special additives with our own base oil technology, Q8 Bach RF was created and in 1983 we started supplying stainless steel and copper strip producers in Germany. Today we are the market leader.

In 2000, we developed Q8 Bach RFX which has become the industry benchmark for quality and performance. In 2006 Q8 Bach RTM was launched as a tailor made solution for fully integrated stainless steel tandem mills and for 2010 we are pleased to announce the next generation of rolling oils, Q8 Bach REX.

For the specific production and quality requirements of stainless steel manufacturers, Q8Oils recommends the specialised cold rolling oil Q8 Bach RSA.

With this core range of products, we can tailor any of our formulations to meet the productivity requirements of our customers.



The graph demonstrates how Q8 Bach rolling oils decrease friction in the roll bite (CP TE 77 friction test). Less friction means lower energy consumption, which is also good for the environment.



properties	unit	typical data		
		Q8 Bach RFX 8	Q8 Bach RSA 8	Q8 Bach REX 8
appearance		Bright & Clear	Bright & Clear	Bright & Clear
density 15°C	kg/m ³	845	846	842
kinematic viscosity, 40°C	mm ² /s	8.0	7.9	7.8
viscosity index		107	116	150
flash point COC	°C	166	166	166
total acid number	mgKOH/g	0.1	0.1	0.15
saponification no.	mgKOH/g	6.0	8.0	10.0
phosphor	%(m/m)	0.13	0.19	0.20
copper strip, 3h, 100°C		1a	1a	1a
air release, 50°C	min.	2	2	1
4 ball welding load	kg	190	200	220
4 ball wear (40kg, 1200 RPM, 75°C) scar	mm	0.67	0.62	0.46



Rolling oil technology issues:

Functionality:

Excluding the mill, the most significant factor in product quality and productivity is the rolling oil. The formulation must ensure excellent lubrication of the roll bite, cooling of the strip, lubrication of the contact areas between the work & back-up rolls and the bearings.

Filtration:

Also critical to strip product quality is the need for the oil to remove small particles away from the contact areas. These particles must then be filtered out of the oil, but the efficiency of this will depend on the product formulation. Q8Oils base oils, in combination with the correct additives, ensure the highest levels of filterability.

The four key elements are:

- ❑ No additives that can cause filter blocking;
- ❑ The oil may not contain detergents or cleaning additives;
- ❑ Good air release (fresh oil VG 8: <3 min @ 50°C);
- ❑ Filter blockage is caused by degradation of the oil and anti-oxidants should be maintained at a minimum level >0.05% m/m with the support of Q8Oils.

Oxidation

Free radicals are reactive chemicals generated by lubricant degradation. Anti-oxidants are used to control propagation, but if not formulated correctly, insoluble by-products will form and varnish will occur. Auto-degradation can also create insoluble contaminants in low or no-flow sections leading to filter blockage.

Total Acid Number (TAN)

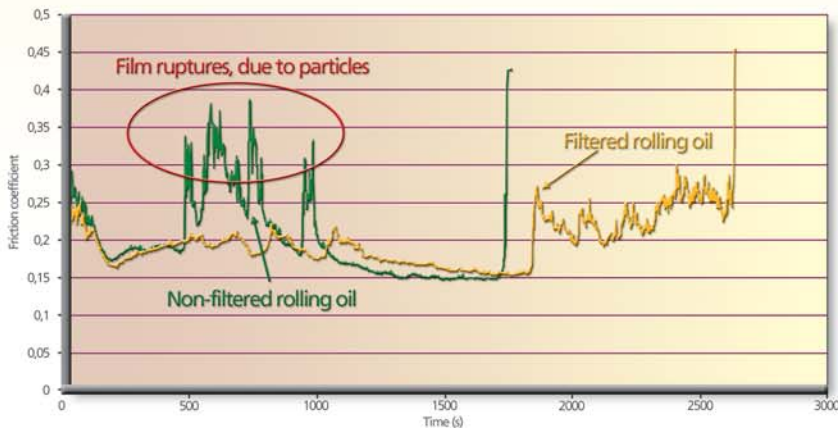
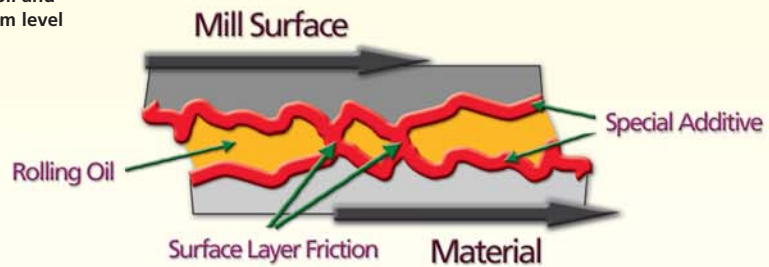
TAN is the amount of potassium hydroxide required to neutralize acids in one gram of oil. It is an important quality measurement that indicates the amount of acids present in the oil as a result of oxidation.

Additive terminology:

Lubricity additive: Hydrocarbons with polar groups that adhere to surfaces to form a lubricating film that prevents metal contact, so reducing friction and wear.

Extreme Pressure (EP) additives: Components which are surface active and form a molecule thick film to reduce wear on high-load surfaces.

Anti-oxidants: Phenolic & amine anti-oxidants that reduce and slow down the oxidation process.



Influence of particles on the friction coefficient of rolling oils (CPTe77 test)

Q8Oils

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Roloil

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