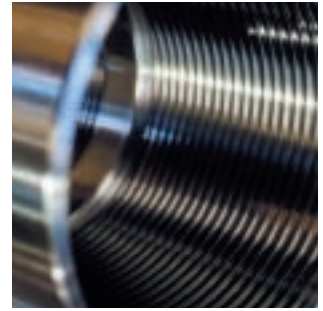




Tenaris Hydri

Premium Connections
for Demanding
Environments



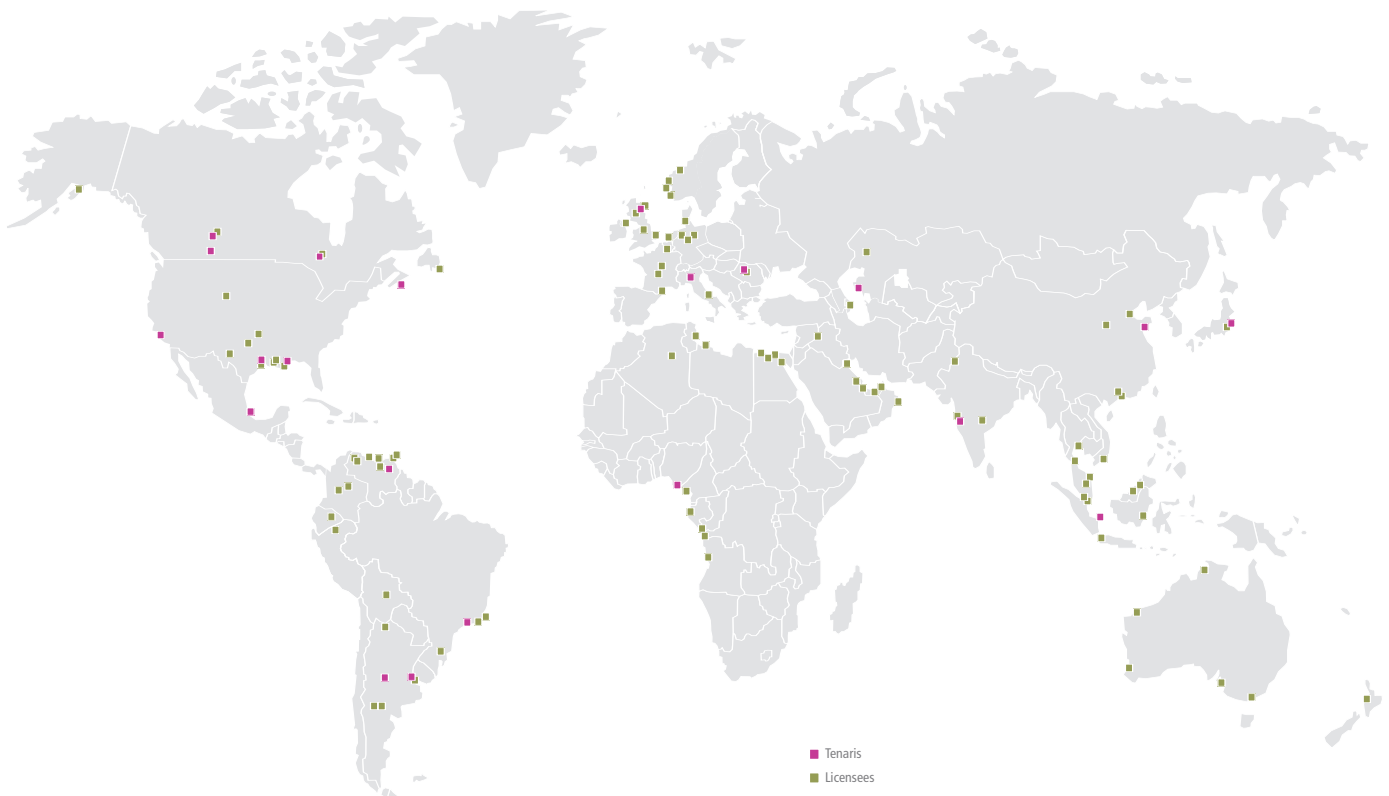
TenarisHydril

TenarisHydril offers the best in premium connection design and technology worldwide. With a comprehensive range of high performance products backed by an extensive global service network, we develop solutions to meet the needs

of ever more demanding oil and gas drilling environments.

TenarisHydril premium connections are supplied and supported by Tenaris, the leading manufacturer and supplier of steel tubes

and integrated tubular solutions to the world's energy industry, and a worldwide network of licensed threading and repair shops.



Design and Technology

TenarisHydril offers a comprehensive range of outstanding and proven products designed to meet the requirements of the most challenging applications.

TenarisBlue®

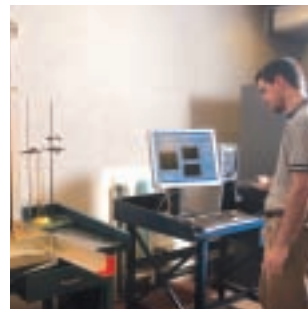
TenarisBlue is the most advanced premium connection technology available. TenarisBlue connections are designed for the most complex and environmentally sensitive oil and gas wells and for testing under ISO 13679 CAL IV. Providing all-round excellent performance, TenarisBlue connections add value by reducing risk and increasing reliability and performance.

Dopeless®

Our Dopeless technology is the only dry, dope-free technology in the market. Designed for use with TenarisBlue connections, it combines improved operational efficiency with enhanced environmental protection. It is particularly suitable for use in sensitive offshore operations where its operational advantages of improved safety and reduced running times can have the greatest benefits.

Wedge Series 500™

Wedge Series 500 technology is specially designed for use where torque strength is critical. With high compression resistance and several times the torque strength of most technologies, Wedge Series 500 connections provide high



performance even on pipe with thin walls. They are used in demanding applications from highly deviated wells to strings that must be rotated and pushed into place.

Wedge Series 500 connections are available in flush, near flush, upset and threaded and coupled configurations, with or without metal-to-metal seals. Each connection bears a number in the 500 series where the second digit denotes the connection configuration and pipe end and the third digit denotes the sealing system.

Legacy Technologies

Not every well calls for the benefits and performance features of TenarisBlue or Wedge Series 500 technology. That is why TenarisHydril offers a broad range of

proven performers – both integral and threaded and coupled. These connections have well established track records in many challenging drilling environments across the globe. Many of our Legacy Technologies represent milestones in the development of the industry over the past 60 years.

Atlas Bradford®

In addition to TenarisHydril connections, Tenaris supplies and supports Atlas Bradford connections outside the USA. Tenaris has exclusive license rights for manufacturing and marketing of Atlas Bradford connections outside North America and non-exclusive rights in Canada.



Quality and Manufacturing

TenarisHydril premium connections are manufactured to exacting quality standards under the same quality management system that Tenaris uses throughout its global manufacturing system. This holds global ISO 9001 registration. By manufacturing premium connections as part of an integrated process of

pipe design, production, treatment and finishing, we assure the quality of the product. We can also respond promptly and flexibly to changes in required specifications and other unexpected conditions while maintaining the highest quality standard expected by the industry.



Repair Shops and Field Services

TenarisHydril premium connections and accessories are supported worldwide by Tenaris's pipe finishing and service facilities plus a network of licensed threading and repair shops. Experienced field specialists are on hand

to assist customers in running and handling connections. Workshop personnel are trained and audited by Tenaris in accordance with its unified, global quality management system.



Application Guide

SURFACE CASING	INTERMEDIATE CASING	PRODUCTION CASING & TIE-BACKS	LINERS	
<p>Threaded & Coupled</p> <p>Wedge 563™ ERT™</p> <p>Integral</p> <p>Wedge 523™ Wedge 521™ Wedge 513™ Wedge 511™</p>	<p>Threaded & Coupled</p> <p>Blue™ (1) Wedge 563™ 3SB™ MST™ HW™</p> <p>Integral</p> <p>Blue™ Near Flush (1) Wedge 523™ Wedge 521™ SLX™ MAC-II™</p>	<p>Threaded & Coupled</p> <p>Blue™ (1) Wedge 563™ 3SB™ MST™</p> <p>Integral</p> <p>Blue™ Near Flush (1) Wedge 523™ Wedge 513™ SLX™ MAC-II™</p>	<p>Conventional Liners</p> <p>Blue™ (1) Blue™ Near Flush (1) Wedge 523™ Wedge 521™ Wedge 513™ Wedge 511™ SLX™</p> <p>Rotating /Drilling Liners</p> <p>Blue™ (1) Blue™ SAGD Wedge 563™ Wedge 523™ Wedge 521™ Wedge 513™ Wedge 511™</p>	
HORIZONTAL AND EXTENDED REACH WELLS	THERMAL WELLS	HIGH PRESSURE & HEAVY-WALL CASING	PRODUCTION TUBING & WORKSTRINGS	
<p>Threaded & Coupled</p> <p>Blue™ (1) Blue™ SAGD Wedge 563™ Wedge 561™</p> <p>Integral</p> <p>Wedge 523™ Wedge 521™ Wedge 513™ Wedge 511™</p>	<p>Steam Injection</p> <p>Blue™ (1) Wedge 563™</p> <p>Slotted Pipes, SAGD</p> <p>Blue™ SAGD Wedge 521™ Wedge 511™</p> <p>Production Tubing</p> <p>Wedge 503™</p>	<p>Threaded & Coupled</p> <p>HW™</p> <p>Integral</p> <p>MAC-II™</p>	<p>Metal Seal Thread Seal</p> <p>Blue™ (1) Wedge 561™ Wedge 563™ Wedge 531™ Wedge 533™ Wedge 501™ Wedge 503™ Wedge 551™ Wedge 553™ PH-4™ PH-6™ CS® PJD™ 3SB™ MST™</p>	
CASING WHILE DRILLING	DRILLING WITH TUBING	TUBING FOR INTERNAL COATING (CB)	DEEP HP/HT WELLS	
<p>Threaded & Coupled</p> <p>Blue™ (1) Blue™ SAGD Wedge 563™ ERT™</p> <p>Integral</p> <p>Wedge 523™ Wedge 521™ Wedge 513™ Wedge 511™ PJD™</p>	<p>Wedge 563™ Wedge 533™ Wedge 553™ PH-4™ PH-6™ CS® PJD™</p>	<p>Threaded & Coupled</p> <p>Wedge 563™</p> <p>Integral</p> <p>Wedge 533™ Wedge 553™ PH-4™ PH-6™ CS®</p>	<p>Threaded & Coupled</p> <p>Blue™ (1) Wedge 563™</p> <p>Integral</p> <p>Blue™ Near Flush (1) Wedge 523™ Wedge 521™ Wedge 513™ Wedge 511™ SLX™</p>	

(1) Dopeless® technology available

Product Characteristics

THREADED & COUPLED



Blue™

Available in sizes from 2 3/8" to 13 5/8"
Dopeless® technology available

Applications

- Production tubing and casing, including HP/HT environments
- Intermediate casing
- Tie-backs
- Highly deviated and horizontal and extended reach wells
- Liners
- Casing while drilling
- High compression and high torque
- Thermal well solutions, including steam injection
- Majority of carbon steel applications
- Especially suitable for corrosion-resistant alloys

Key Features and Benefits

- Easy stabbing
- Fast make-up and no cross-threading risk
- Structural efficiency equivalent to pipe body
- Gas tightness under combined-load conditions
- Superior performance under tension / compression cycles
- Dopeless® option available for operational efficiency and enhanced environmental protection
- High torque strength
- Work strings



Blue™ SAGD

Available in sizes from 2 3/8" to 10 3/4"

Applications

- Thermal well solutions – slotted pipes, SAGD operations
- Rotating liners
- Horizontal wells
- Casing while drilling

Key Features and Benefits

- High torque and compression capacity for rotating in horizontal liners
- Optimized thread profile for maximum structural integrity on thin-wall pipe
- Fast and easy make-up with no cross-threading risk
- Structural efficiency equivalent to pipe body



Wedge 563™

Available in casing sizes from 5" to 16"
Available in tubing sizes from 2 3/8" to 7"

Applications

- Majority of carbon steel applications
- Production tubing and casing
- Intermediate casing
- Tie-backs
- Highly deviated and extended-reach applications
- Especially suitable for corrosion-resistant alloys
- Thermal well solutions, including steam injection
- Drilling with tubing

Key Features and Benefits

- Work strings
- Tubing for internal coating
- Exceptional torque strength
- 100% rated metal seal for internal pressure
- 100% collapse-rated thread seal
- High tension and bending strength
- Special clearance OD retains full tension and pressure ratings
- Roller-stenciled make-up band provides confirmation of make-up
- Interchangeable with 533, 503 and 553 on tubing sizes



Wedge 561™

Available in sizes from 2 3/8" to 4 1/2"

Applications

- Work strings
- High deviated, extended-reach wells
- Milling, jarring, fishing
- Drilling cement
- Diamond-coring operations

Key Features and Benefits

- Exceptional torque strength
- Positive torque stop virtually eliminates pin-end and ID restrictions from overtorque
- Rugged, coarse-pitch thread and deep stabbing prevents cross-threading
- Wear indicator useful for extended work string applications
- 100% pipe body rating for compression
- 100% collapse-rated thread seal
- High tension and bending strength
- Special clearance OD retains full tension and pressure ratings
- Roller-stenciled make-up band provides visual confirmation of make-up
- Corrosion-barrier (CB) ring optional
- Interchangeable with 531, 501 and 551



3SB™

Available in sizes from 2 3/8" to 13 5/8"

Applications

- Especially suitable for corrosion-resistant alloys and sour service
- Production tubing and casing
- Surface casing
- Intermediate casing
- Tie-backs

Key Features and Benefits

- Excellent gas tightness
- Optimum joint efficiency
- Easy stabbing with no cross-threading risk
- Rugged torque shoulder
- Special clearance and special bevel options available



ERT™

Available in sizes from 7" to 24 1/2"

Applications

- Surface casing
- Intermediate casing

Key Features and Benefits

- Easy stabbing, fast make-up with no cross-threading risk
- Optimum joint efficiency
- Strong torque shoulder
- Matched strength, special clearance and special bevel options available



HW™

Available in sizes from 5" to 10 3/4" and 14"

Applications

- High pressure and heavy-wall casing
- Production casing
- Intermediate casing
- Salt dome application

Key Features and Benefits

- Especially designed for medium to heavy wall pipes
- Excellent gas tightness
- Easy stabbing and no cross-threading risk
- Hook thread design
- Optimum joint efficiency
- Rugged torque shoulder
- Special clearance and API regular options available
- Metal-to-metal seal



MST™

Available in sizes from 2 3/8" to 14"

Applications

- Production tubing and casing
- Intermediate casing
- Geothermal wells
- Majority of carbon steel applications

Key Features and Benefits

- Excellent gas tightness
- Rugged torque shoulder
- Easy stabbing, fast make-up and no cross-threading risk
- Optimum joint efficiency
- Corrosion barrier (CB) and seal ring options available
- Match strength, special clearance and special bevel options available
- 100% tensile efficiency
- 100% internal pressure and collapse ratings
- High compression strength

INTEGRAL NEAR FLUSH



Blue™ Near Flush

Available in sizes from 5" to 13 5/8"

Dopeless® technology available

Applications

- Production casing
- Liners
- Intermediate casing
- Deviated and horizontal wells
- HP/HT applications
- Tight clearance applications

Key Features and Benefits

- Near flush design for improved clearance
- Superior compression efficiency, over 50%
- High-tension efficiency up to 78%
- Excellent structural integrity
- High overtorque capacity
- Dopeless® option available for operational efficiency and enhanced environmental protection
- Tested to ISO 13679 CAL IV



Wedge 523™

Available in sizes from 7" to 16"

Applications

- Production casing
- Intermediate casing
- Tie-backs
- Casing while drilling
- Horizontal, extended-reach wells
- Tight clearance situations
- Push and rotate into place
- Rotate during cementing in deviated holes

Key Features and Benefits

- Exceptional torque strength
- High performance, even on thin walls
- Tension and bending efficiencies 70-75% of pipe body
- Compressions efficiencies typically 80-85%
- 100% rated metal seal for internal pressure
- 100% collapse-rated thread seal
- Clearance OD typically less than 2% larger than pipe body
- Available on non-API sizes for clearance situations
- Interchangeable with 513 for a given size and weight



Wedge 521™

Available in sizes from 4" to 18 5/8"

Applications

- Large-diameter, high-clearance surface casing
- Intermediate casing
- Clearance situations
- Horizontal and extended reach strings
- Casing while drilling
- Horizontal liners
- Rotating while cementing
- Thermal well solutions, including slotted pipe, SAGD operations

Key Features and Benefits

- Exceptional torque and compression strength
- Tension and bending strengths of 65-75% of pipe body, even on thin-wall pipe
- Compression efficiency exceeds tension, typically 80-89%
- 100% collapse-rated thread seal
- Available on non-API sizes for clearance situations
- Roller stenciled make-up band provides visual confirmation of make-up



SLX™

Available in sizes from 4 1/2" to 13 5/8"

Applications

- Production casing
- Intermediate casing
- Tie-backs
- Liners
- HP/HT use
- Clearance applications
- Gas storage production strings
- High-alloy liners

Key Features and Benefits

- Clearance OD typically less than 2% larger than pipe body OD
- Hooked threads virtually eliminate thread pullout, even on pipe with a high diameter-to-thickness ratio
- Tension strength typically exceeds 75%
- 100% rated metal seal for internal pressure
- 100% pipe body collapse rating
- Deep-stabbing, two-step design for easy make-up
- Available on non-API sizes for clearance situations
- Seal saver protects pin seal from handling damage and acts as a stiffener to improve metal seal function



MAC-II™

Available in sizes from 5 1/2" to 16"

Applications

- Heavy-wall casing for critical HP/HT use
- Production casing
- Intermediate casing
- Tie-backs
- Shifting salt intervals

Key Features and Benefits

- Formed pin and box ends increase tension strength and combined load performance
- Performance ratings account for API pipe body dimension variations
- 100% rated metal seal for internal pressure
- 100% rated metal seal for external pressure
- Deep-stabbing, two-step design provides trouble-free makeup, even on heaviest pipe weights

INTEGRAL FLUSH



Wedge 513™

Available in sizes from 4 1/2" to 16"

Applications

- Production liners
- Horizontal, extended-reach wells
- Rotating into place and during cementing
- Tight clearance situations
- Steam injection wells
- Drilling with casing

Key Features and Benefits

- Exceptional torque strength
- Pipe body-OD connection
- Tension and bending strengths of 60-65% of pipe body
- Exceptional compression efficiency, up to 78%, exceeds tension
- 100% rated metal seal for internal pressure
- 100% pipe body collapse strength
- Available on non-API sizes for clearance situations
- Interchangeable with 523 for a given size and weight



Wedge 511™

Available in sizes from 2 1/16" to 18 5/8"

Applications

- Large-diameter, high-clearance surface casing
- Casing while drilling
- Thermal well solutions- slotted pipe, SAGD operations
- Wash pipe
- Wire-wrapped screens for horizontal, extended reach wells
- Tubing salvage

Key Features and Benefits

- Exceptional torque strength
- Pipe body-OD connection
- Exceptional compression efficiency, up to 75%, exceeds tension
- 100% collapse-rated thread seal
- Drilling and workover-rig compatible with commonly used procedures, equipment
- Available on non-API sizes for clearance situations

INTEGRAL UPSET



Wedge 533™

Available in sizes from 2 3/8" to 7 5/8"

Applications

- Production tubing
- Work strings
- Internally-coated tubing
- Drilling with tubing
- Through tubing rotary drilling
- High-alloy strings
- HP/HT environments, including gas-storage production

Key Features and Benefits

- Exceptional torque strength
- Positive torque stop virtually eliminates pin-end and ID restrictions from overtorque
- Wear indicator useful for extended work string applications
- 100% rated metal seal for internal pressure
- 100% pipe body ratings for tension, compression and bending
- 100% collapse-rated thread seal
- Corrosion-barrier (CB) ring optional
- Interchangeable with 563, 503 and 553

INTEGRAL UPSET



Wedge 503™

Available in sizes from 2 3/8" to 4 1/2"

Applications

- Production tubing
- High-torque work strings
- Injection/production strings for SAGD wells
- Drilling cement
- Diamond-coring operations
- J-lay flowlines
- Highly deviated, extended reach wells

Key Features and Benefits

- Exceptional torque strength
- Positive torque stop virtually eliminates pin-end and ID restrictions from overtorque
- 100% rated pipe body ratings for compression, tension and bending
- 100% rated metal seal for internal pressure
- 100% collapse-rated thread seal
- Interchangeable with 563, 533 and 553



Wedge 553™

Available in sizes from 2 3/8" to 7 5/8"

Applications

- Production tubing
- Work strings
- Internally-coated tubing
- Drilling with tubing
- High-alloy strings
- Highly deviated, extended-reach applications
- Geothermal
- HP/HT environments

Key Features and Benefits

- Exceptional torque strength
- Positive torque stop virtually eliminates pin-end and ID restrictions from overtorque
- 100% pipe body rating for compression
- 100% rated metal seal for internal pressure
- 100% collapse-rated thread seal
- Roller-stenciled make-up band provides visual confirmation of make-up
- Suitable for H2S service
- Corrosion-barrier (CB) ring optional
- Interchangeable with 563, 533 and 503



Wedge 531™

Available in sizes from 2 3/8" to 4 1/2"

Applications

- Work strings
- Production tubing
- Drilling with tubing
- Highly deviated, extended-reach wells
- Milling, jarring, fishing
- Drilling cement
- Diamond-coring operations

Key Features and Benefits

- Exceptional torque strength
- Positive torque stop virtually eliminates pin-end and ID restrictions from overtorque
- Rugged, coarse-pitch thread and deep stabbing prevent cross-threading
- Wear indicator useful for extended work string applications
- 100% pipe body rating for compression, tension and bending
- 100% collapse-rated thread seal
- Interchangeable with 561, 501 and 551



Wedge 501™

Available in sizes from 2 3/8" to 4 1/2"

Applications

- Work strings
- High deviated, extended-reach wells
- Milling, jarring, fishing
- Drilling cement
- Diamond-coring operations

Key Features and Benefits

- Exceptional torque work strings
- Positive torque stop virtually eliminates pin-end and ID restrictions from overtorque
- Wear indicator useful for extended work string applications
- Rugged, coarse-pitch thread and deep stabbing prevent cross-threading
- 100% pipe body ratings for compression, tension and bending
- 100% collapse-rated thread seal
- Interchangeable with 561, 531 and 551



Wedge 551™

Available in sizes from 2 3/8" to 4 1/2"

Applications

- Work strings
- Highly deviated, extended-reach wells
- Milling, jarring, fishing
- Drilling cement
- Diamond-coring operations

Key Features and Benefits

- Exceptional torque strength
- Positive torque stop virtually eliminates pin-end and ID restrictions from overtorque
- Rugged, coarse-pitch thread and deep stabbing prevent cross-threading
- 100% pipe body rating compression, tension, bending
- 100% collapse-rated thread seal
- Roller-stenciled make-up band provides visual confirmation of make-up
- Interchangeable with 561, 531 and 501



PH-6™

Available in sizes from 3/4" to 7"

Applications

- Production tubing, including HP/HT environments
- Work strings
- Internally-coated tubing
- Drilling cement, milling and fishing
- High-pressure drill stem testing
- Drilling with tubing

Key Features and Benefits

- Two-step, non-interference thread for trouble-free makeup
- 100% pipe body tension strength
- 100% rated metal seal for internal and external pressure
- Special clearance OD retains 100% tension and pressure ratings
- Superior galling resistance for chromium strings
- High torque strength provided by 30° reverse-angle shoulder
- Suitable for H2S service
- Corrosion-barrier (CB) ring optional



CS®

Available in sizes from 3/4" to 7"

Applications

- Production tubing, including HP/HT environments
- Work strings
- Internally-coated tubing
- Drilling cement, milling and fishing
- High-pressure drill stem testing
- Drilling with tubing

Key Features and Benefits

- Two-step, non-interference thread for trouble-free makeup
- 100% pipe body tension strength
- 100% rated metal seal for internal and external pressure
- Special clearance OD retains 100% tension and pressure ratings
- Superior galling resistance for chromium strings
- High torque strength provided by 30° reverse-angle shoulder
- Suitable for H2S service
- Corrosion-barrier (CB) ring optional



PJD™

Available in sizes from 2 3/8" to 7"

Applications

- Production tubing
- Work strings
- HP/HT applications
- Drilling with tubing
- Casing while drilling

Key Features and Benefits

- Slim-line upset design
- Internal/external torque shoulder
- Excellent gas tightness
- Superior torque resistance
- Trouble-free make-up
- Optimum joint efficiency
- Higher performance than pipe body
- Corrosion barrier (CB) ring and internal coating options available
- Metal to metal seal
- 100% internal pressure and collapse pressure ratings

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Version 04 / September 2008

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