

Hess Group GmbH, 57299 Burbach-Wahlbach, Germany

New plant underscores Rochester Concrete Product's commitment to establishing new standards

Rochester Concrete Products (RCP) has opened their doors for customers to tour a new technologically advanced manufacturing plant at their Interlock Concrete Products location in Jordan, Minnesota. RCP is a third-generation family business with a rich history in mortarless concrete manufacturing and construction expertise dating back to 1914. With strong expertise in product manufacturing and design innovation, they have contributed significantly to the construction industry in their home State of Minnesota and the Upper Midwest market region.

With manufacturing facilities in Rochester, Minnesota, as well as other locations in Thorp, Wisconsin, Jordan, Minnesota, and Beaver Dam, Wisconsin they offer high-quality concrete product designs for a wide range of building applications.

Chris Price, CEO of RCP, and Jeff Price, President of RCP, head up the family-run company, and it was their decision to make the impressive investment in capital equipment technology that sets a new standard for quality and innovation.

The journey to build the 45,000 sq. ft. building to house the new plant, which now sits alongside the existing 35,000 sq. ft. manufacturing facility, began touring European production plants to better understand what was needed to position their company for growth in the dynamic North American market that now demands these "European" standards of architectural grade quality in innovated product shapes, sizes, and finishes.

The new plant underscores Rochester Concrete Product's (RCP) commitment to establishing these new standards in color finish, product innovation, and increased availability for the hardscape community in a manner that has enthused not only all the of their contractors and dealers, but all the RCP employees as well.

"The driving factor for the new plant was the fact that we were losing market share to face-mix products which were rapidly becoming the customer's preference" states Jeff Price. "Our existing facility was labor intensive and especially difficult to maintain the necessary spare parts inventory to limit the breakdowns and associated downtime. It was time to do more than merely upgrade the existing manufacturing capabilities. It was critical to embrace a generational change."

The RCP Team previously had traveled to Europe to tour selected facilities with regularity, but they decided to intensify their research with more express purpose in 2019. "It became apparent that producers who made the critical investment in face-mix products of high quality were operating the RH 2000-4 MVA Hess production machines. Our philosophy and commitment to a higher standard of quality and innovation seemed to naturally lead us to the Hess Group technology" offers Chris Price. "We also saw an opportunity to share best practices with these fellow Hess producers to shorten our learning curve and accelerate the elevation of our standards. Moreover, the Topwerk Group (of which Hess Group is a part) and their expanding commitment to support the North Amer-



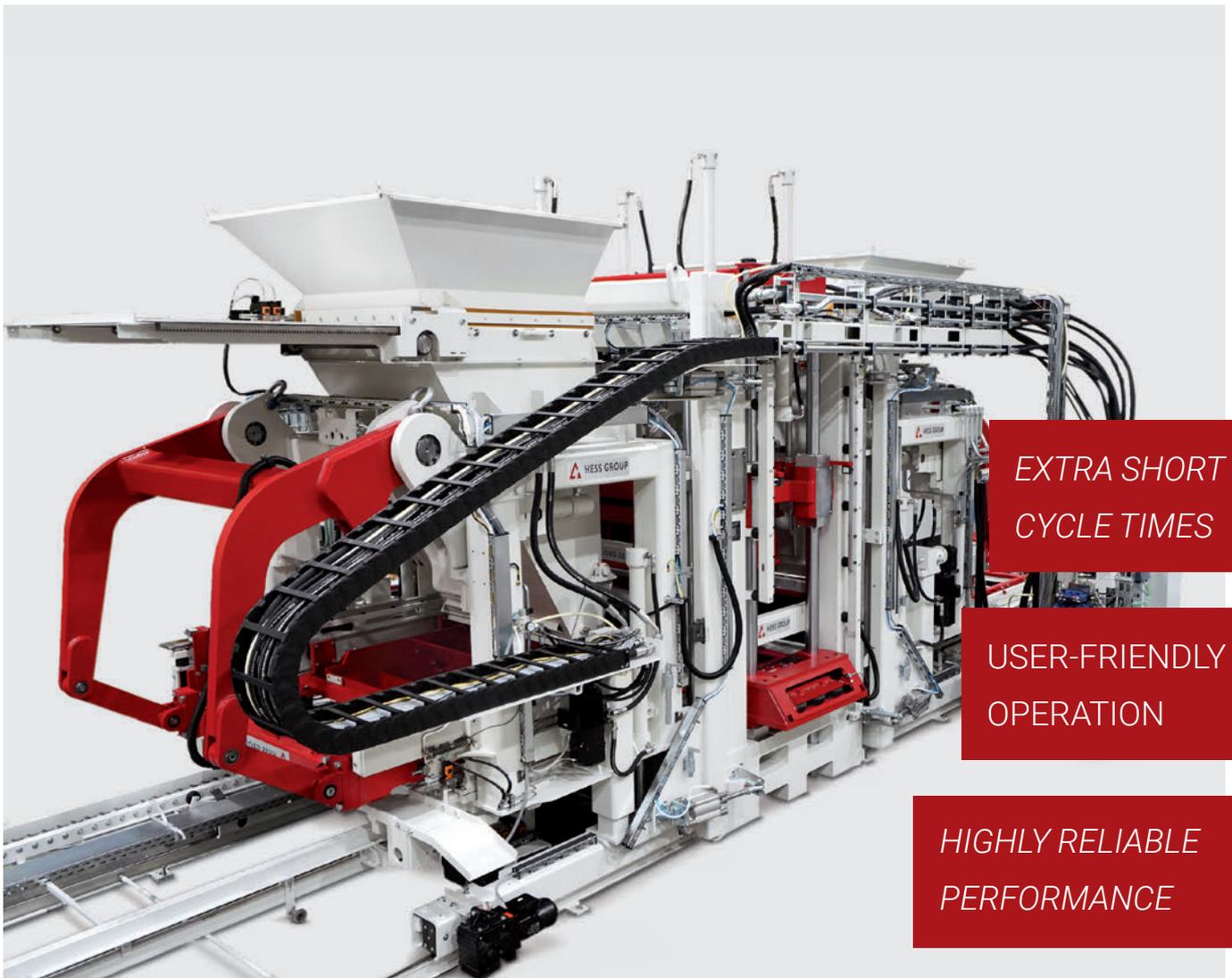
Rochester Concrete Products' new manufacturing plant at their Interlock Concrete location in Jordan MN



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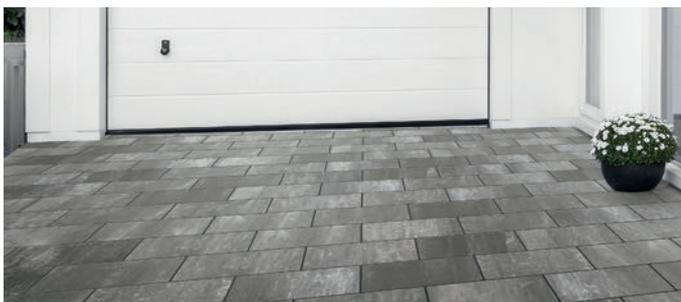
RH 2000-4 MVA – High PRECISION *in* CONCRETE SHAPING



EXTRA SHORT
CYCLE TIMES

USER-FRIENDLY
OPERATION

HIGHLY RELIABLE
PERFORMANCE



HESS GROUP is a world leading supplier of high-performance concrete block machines, dosing and mixing systems as well as the associated packaging and conveying technology.

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We put concrete into shape.



Oliver Rauter, Managing Director of Hess Group, and Jeff Price, President of Rochester Concrete Products, reviewing safety controls of new plant.



Scott Schaffler, Director of Operations, and Kevin Mensink, Vice President of Marketing, in the plant control room monitoring the batching and mixing systems.

ican Market with the establishment of Topwerk America, Inc. in Conroe, Texas was a crucial factor in our final selection."

The final decision to build a new facility and forego upgrading the existing facility was, in the end, an easy decision once all critical factors were considered by the RCP executive team. The ability to increase the level of automation, capacity output, material management, and quality control provided the justification for the capital investment. Chris Price was pleased to select Hess Group as the lead equipment vendor for this transformative project. "Hess Group was supportive throughout the entire process - from providing us with upgrade quotations for the existing facility, to coordinating the European plant tours, and then ultimately to the final new plant discussion, design, and analysis." He adds "Their entire team was very professional and supportive of our decision to go forward with the advanced equipment technology. Their project management was diligent and aligned with what you would expect from the leader in concrete product manufacturing technology."

Hess RH 2000-4 MVA Production Machine

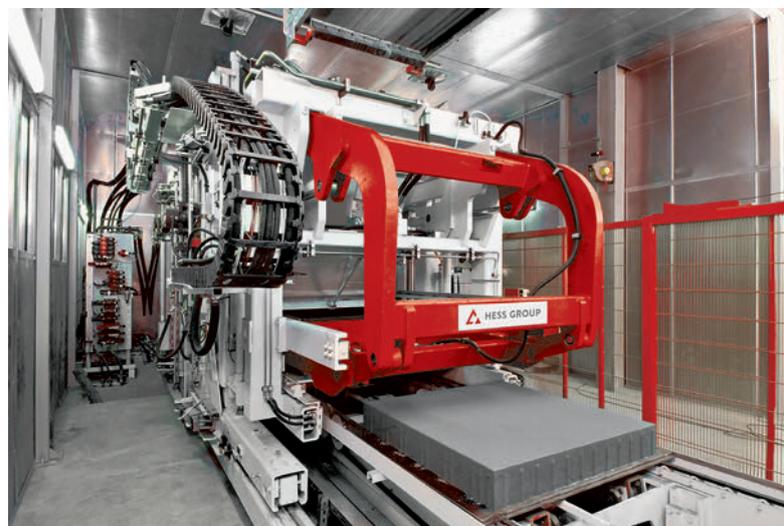
"The centerpiece of the new plant was the Hess RH 2000-4 MVA production machine. This is not just another machine, but a machine like no other," exclaims Kevin Mensink, Vice President of Marketing for RCP. "This machine's specialized operating system and technical capabilities were developed expressly for the larger size paving slab with face-mix finish. We are now able to consistently produce architectural grade products that meet our new standards!" Scott Schaffler, Director of Operations at the new Interlock Concrete facility in Jordan, agrees with the reliable performance of the new Hess machine by sharing that "Whatever products we might now categorize as seconds are better than what was previously viewed as first-quality output. This machine is a game changer!"

During the frequent plant tours for contractor customers, Kevin Mensink highlights the specific features of the RH 2000-4 MVA production machine that make the difference.

Beginning with the four (4) independently controlled tamper head cylinders which deliver uniform height and density to the highest calibrated value, to the patented Planing Roller that allows face-mix design with higher moisture content to deliver a stronger, bolder, and richer paver finish.

"Others have attempted to do this using different methods, but never with the quality, precision, and efficiency that Hess technology delivers. The Planing Roller has made possible a broader spectrum of products sizes and richer palette of color finishes," Kevin adds.

All of this is on full display for over six hundred contractor customers who will have taken advantage of the 2024 introductory plant tour campaign. "The entire plant was conceived to be an eye-opening testimony of our commitment to become the brand that contractors prefer for ease of installation and simplicity" offers Jeff Price. "Availability, Quality, Reliability, and Innovation are now the bedrock attributes associated with the RCP brand.



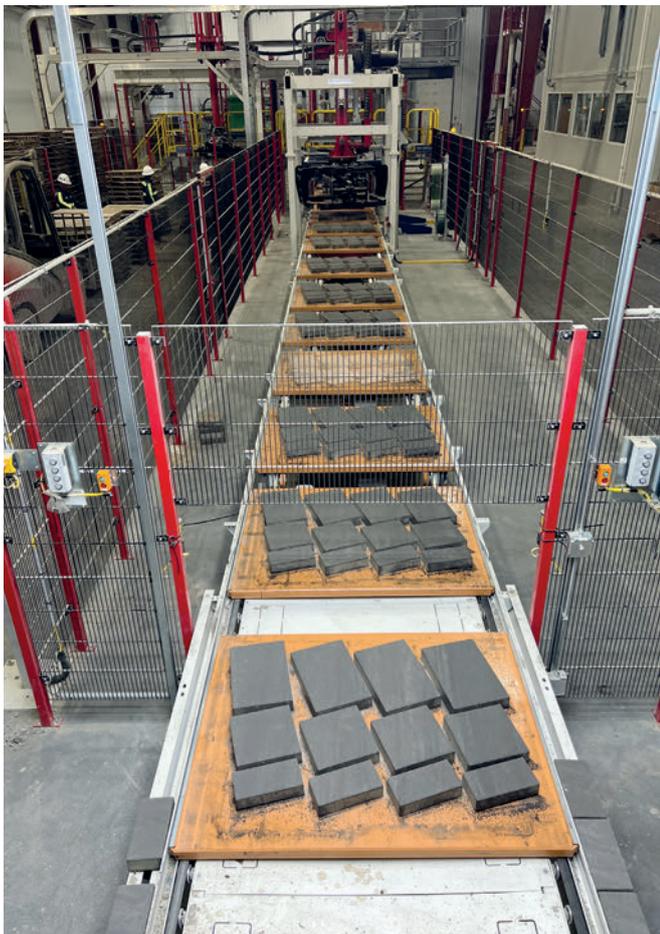
Hess RH2000-4 MVA production machine with advanced technology for larger sizes and high quality finishes.

Molds

A further example of the new commitment to the highest standards are the care and attention given to the manufacturing molds by Kobra. The mold components are essential to shape the concrete paver. The stability, durability and design of the mold will directly bring about the size, structure, and architectural qualities of the manufactured paver or paver slab unit. "Molds are a great example of how a small decision, upstream in the production process can have a huge impact on what the contractors experience in the backyard" states Kevin Mensink. "RCP has made investments to ensure these mold components translate into meaningful benefits for our customers." For example, a Headguide Alignment which ensures that the head comes down in precisely the same spot on the mold frame, cycle after cycle, will maintain uniform chamfers and edges for the paver unit. Additionally, Heated Tamper Head Shoes enable RCP to efficiently produce a paver product with face-mix finish of higher moisture content which results in bolder and brighter colors.

Production Boards

The production board itself is often overlooked as a vital component in the manufacturing process of a paver slab product of larger sizes. The production board forms the bottom side



Production boards with tilted paver configuration

of the mold, and its strength and durability will contribute to the production cycle with a direct cast on the final product. RCP selected the Wasa Woodplast® production board by Wasa AG. This highly valued production board combines high-performance plastic with a softwood core to deliver for extreme impact-resistance and high bending strength to maintain the integrity of the production board.

Board Buffer Capacity

To assure the constant output efficiency of the RH 2000-4 MVA production machine, RCP has made a substantial investment to provide ample Board Buffer storage capacity 2400 production boards. This surplus accounts for any cycle-time differential between the Wet Side (production line) and the Dry Side (handling and packing lines) that may occur due to temporary or planned downtimes. Moreover, this enables the production and/or packing lines to keep operating to assure increased product availability for customers. "This Board Buffer capacity allows us to run 14 hours in case of short-term stoppages on the lines. Being able to continuously run a machine does more than simply increase output capacity, it also supports consistent product quality," offers Kevin Mensink.

Batching, mixing, and color blending

Batching

Apparently, every plant tour begins at the beginning, and that starts with the raw materials batching, mixing, and color blending. RCP selected Advanced Concrete Technology (A.C.T.) to provide the batching, mixing, and color blending equipment systems for their new plant. A.C.T. has collaborated with Hess Group on numerous plants throughout the world, and they share the same view towards customer technical support in North America. A.C.T. was able to supply the complete scope of equipment within the established timetable for the project despite supply chain issues confronting others in the industry at the time.



The board buffer cart automatically collects, stores, and transfer production board to machine on demand.



Inside storage of raw materials with 660 tons capacity to assure consistent moisture of batched mix design.



To assure that there is consistent moisture content and the correct temperature in raw materials, ample inside storage for all raw material aggregates was provided. There is now 660 tons storage of raw materials inside the plant.

Mixing

The mixing platform has three (3) mixers: one (1) Wiggert HPGM-3750 mixer for the base mix, and two (2) precision Wiggert HPGM-375 mixers for the face-mix designs. The HPGM-3750 Mixer capability assures steady supply of raw materials to keep up with the material consumption demands of production machine cycles for even the highest volume product types, such as over-sized steps and retaining walls. The two HPGM-375 Face-Mixers reduce the risk of cross-contamination from one mix design to the next, and to ensure consistent purity of mix design colors when white cement is part of the color mix design.

Color Blending

The four (4) Quad Oscillating Shuttle Belts can move in-and-out in twenty distinct positions. This overcomes color striping

common through laying color directly on the belt. The Quad belts deliver the raw color mixture in exact proportions controlled by the speed of the belts and the position of the belt drop point. This flexible combination of speed, proportion, and placement on the main feed belt allow a wider range of color blending designs. These highly calibrated mix designs are programmable and saved on the operating software for consistent recall for future production runs of the same products. "Our goal is to deliver the same color blends in October that we delivered in May. We want our customer to know they can rely on our colors to be consistent from batch to batch" Kevin Mensink remarks.

The facemix microdoser dispenses color by the grams, not by the pound as many concrete facilities currently practice. Tighter and finer aggregates in controlled dosages assure vibrant and distinctive color finishes and create a more natural blending of colors.

Chroma Shield Sprayer

A layer of chemical surface protection is applied to the freshly made pavers with the Chroma Shield Sprayer. This coat-



HPGM-3750 base mixer to assure constant supply for production machine.



HPGM-375 face mixer for optimal mixture of finer aggregate material.



Quad Belt oscillate distribution automatically programmed for consistent color blending.



Microdoser dispenses color in grams for precise control of final color design.

ing process protects the color finish and bright bold finish against harmful effects of exposure to sun, salt, and other lawn chemicals.

Quality Control

Wet Side QC

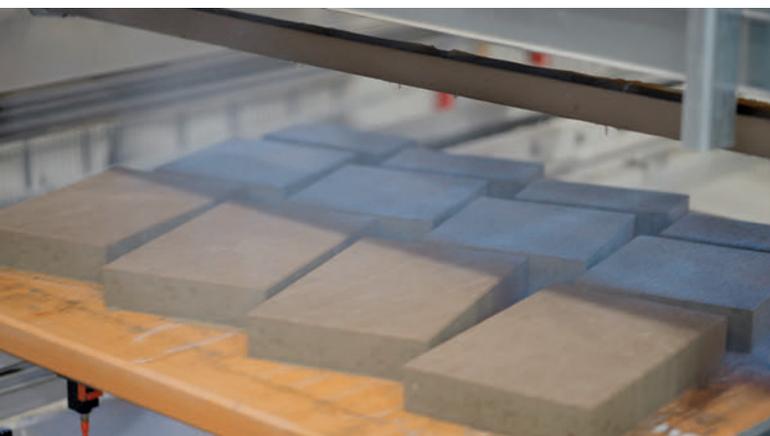
To assure the new standard of high-quality products RCP has provided specific Quality Control stations on both the Wet-side and the Dry-side of the manufacturing lines. On the Wet-side, the height and the density of the product layers are monitored and measured by laser for precise height with a tolerance of +/- 1 mm. "Our products are easier to install for the contractor. Our pavers will have consistent height from the first one they pull until the last one installed", Kevin Mensink points out.

The density measurement is achieved by weighing the board before the production machine and then after the board emerges from the machine with fresh new product layers. "Density is the fundamental determinant of final strength in

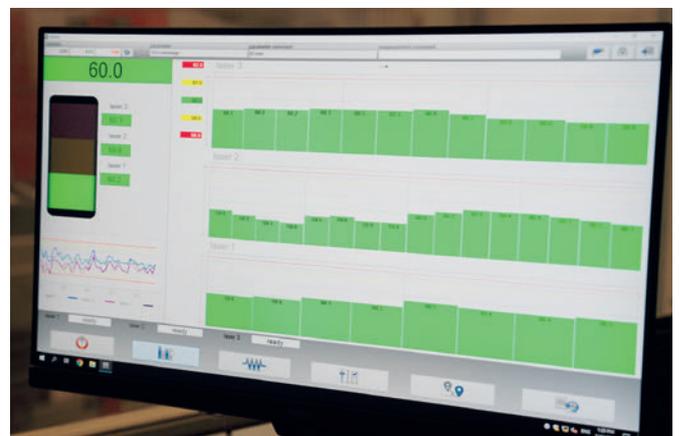
the finished product. If any product does not meet our density standard, we reject that product right then and there, before it even reaches the kiln" explains Scott Schaffler. The Wet-side Quality Controls also visually check for face and edge definition as well as other aspects that will be correlated back to the production machine cycle parameters.

Dry Side QC

On the Dry-Side a specific QC Station is staffed by two QC Specialists who monitor and replace any defective pavers that have been identified by the laser-monitored QC system, and any that do not pass their further visual inspection standards. Jeff Price quickly adds "Our commitment to quality will continue to advance. We have planned the future installation of an AI Robotic System which we will install within a few years. The conveyor lines are already prepared for this purpose. This system will use camera technology and AI software to convert this QC station into an automated Smart Station that identifies the defects, removes the defective paver, and captures the data for our continuous improvement."



Chroma Shield coats products to prevent final color from fading from exposure to weather and sun elements.



Laser measurement monitor tracks each cycle for height tolerance.



Curing Racks are in a single room to maintain temperature and moisture control for optimum product curing.



Beader device spreads a protective layer of organic beads to prevent surface damage during shipment.

Finger Car and Curing Kiln

The freshly made products are smoothly transferred to the Curing Kiln by the Finger Car which operates on a rail. This single-room curing area by Rotho tightly controls moisture and temperature values so the concrete products gain optimal strength and durability. The initial storage capacity of 5500 production boards will hold multiple shifts and/or certain products which may need to remain longer. An additional capacity of 3300 more boards is planned in the plant layout and can be added with minimum disruption to ongoing operations.

Product Handling and Packing

Stone Squeezer and Beed dispenser

The product layers are consolidated by the Hess Stone Squeezer/Doubler for transport to the shipping pallet line.

The Stone Squeezer tightly pushes the layer together which prevents beads from settling between the individual stones. Each layer of the face-mix pavers is then protected with an application spray of organic beads to safeguard the surface finish through shipping. The organic beads are biodegradable and do not contribute to environmental waste.

Hess Cuber

After curing, the Finger Car transports the products to the Dry Line for handling and product transfer to the packing lines. The Hess Servo 700-2 Cuber itself sets a standard for careful handling and smooth transfer movement of the product layers. It efficiently picks up the layer and transfers the layer while turning the layer for proper positioning on the shipping pallet. This efficient transfer maintains optimum throughput volume of packaged shipping cubes into the inventory yard.



Hess Cuber efficiently transfers product layer from production board to shipping pallet cube.



Banding allows product cube to breathe and minimize packing waste.



Dry Side Handling and Packing lines are fully automatic and maintain efficient throughput of product volume.

Strapping and Wrapping

Most products unless specified otherwise are banded on the shipping cubes as opposed to being plastic-wrapped to allow air to circulate around the shipping pallet. This method also reduces the carbon footprint by avoiding plastic waste on site. A wrapping device on the packing line is installed in the event wrapping is needed.

The excitement created by the numerous customer tours of the new facility and the unveiling of the new products at tradeshow and industry events demonstrates the transformative power of investing in manufacturing equipment technology that, in turn, advances a company's capabilities to meet and exceed customer expectations. "The timing has been great," asserts Chris Price. "And while we are extremely excited for 2024, we are even more enthused about what the future holds for further innovation and even higher levels of quality and consistency. And it all started with a simple goal to upgrade our existing machine."



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FURTHER INFORMATION



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