

Tyczka^{GT}
HYDROGEN



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Tyczka Hydrogen
**Your partner for
green hydrogen**

Working towards a greener economy with hydrogen

Hydrogen is a zero-emission energy carrier and an essential building block for a holistic energy transition based on renewable energies.

Hydrogen brings flexibility to the energy system and improves the integration of renewable energies. One of its greatest advantages is that hydrogen makes renewable electricity easy to store, easy to transport and versatile in its use. Thus, hydrogen transforms solar and wind energy

for temporally and spatially independent use in industry and mobility as well as in power and heat generation.

Hydrogen also opens up new import routes for renewable energies, thereby contributing to the diversification of our energy portfolio in Europe. Whether it is imported in the form of liquid or gas, bound in ammonia or methanol, hydrogen is the foundation of these options.

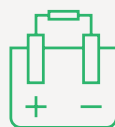


» Hydrogen is the connecting element of a cross-sector energy transition. With certified green hydrogen from Tyczka, we are already supplying stored renewable energy today for heavy-duty mobility and industry.«

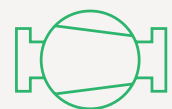
Thomas Zorn
Managing Director of Tyczka Hydrogen GmbH



Renewable energy



Hydrogen production



Compression and filling

Tyczka Hydrogen

Your partner for green hydrogen

Our Mission

We are implementers of a cross-sectoral, sustainable energy transition with green hydrogen!

Tyczka Hydrogen specialises in hydrogen production and supply for customers in the industry, mobility and R&D sectors. The Tyczka Group has a strong foundation as a supplier of industrial gases and LPG, and can draw from over 100 years of experience. We are unlocking the full potential of hydrogen to drive the energy transition.

Our operations cover the entire value chain, from hydrogen production to compression and filling, transport and logistics, to refuelling and application technology for our customers.

The Tyczka Hydrogen team has many years of expertise in working with hydrogen and a wealth of experience in the energy and industrial gases sector. We draw on this expertise and tap into our entrepreneurial and innovative spirit to find tailor-made solutions for every individual requirement. Efficiency, collaborative partnerships, and customer satisfaction are our top priorities.

» Hydrogen as an energy carrier with all its facets never ceases to inspire us day by day. We bring this enthusiasm into the projects with our customers and partners, thereby helping them achieve sustainable success.«

Dr. Christoph Stiller

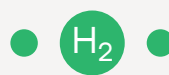
Authorized Signatory | Head of Business Development & Sales of Tyczka Hydrogen GmbH



Transportation and logistics



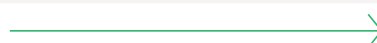
Supply and application technology



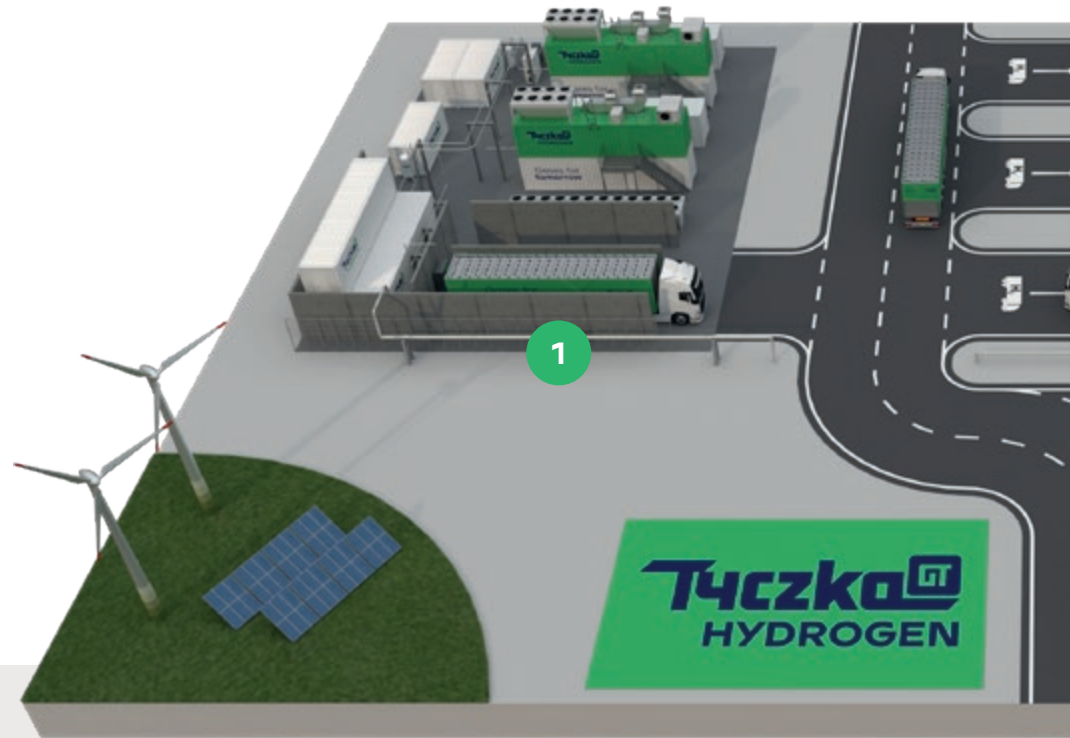
Application in mobility and industry



Our value chain



Your hydrogen supply from Tyczka



1

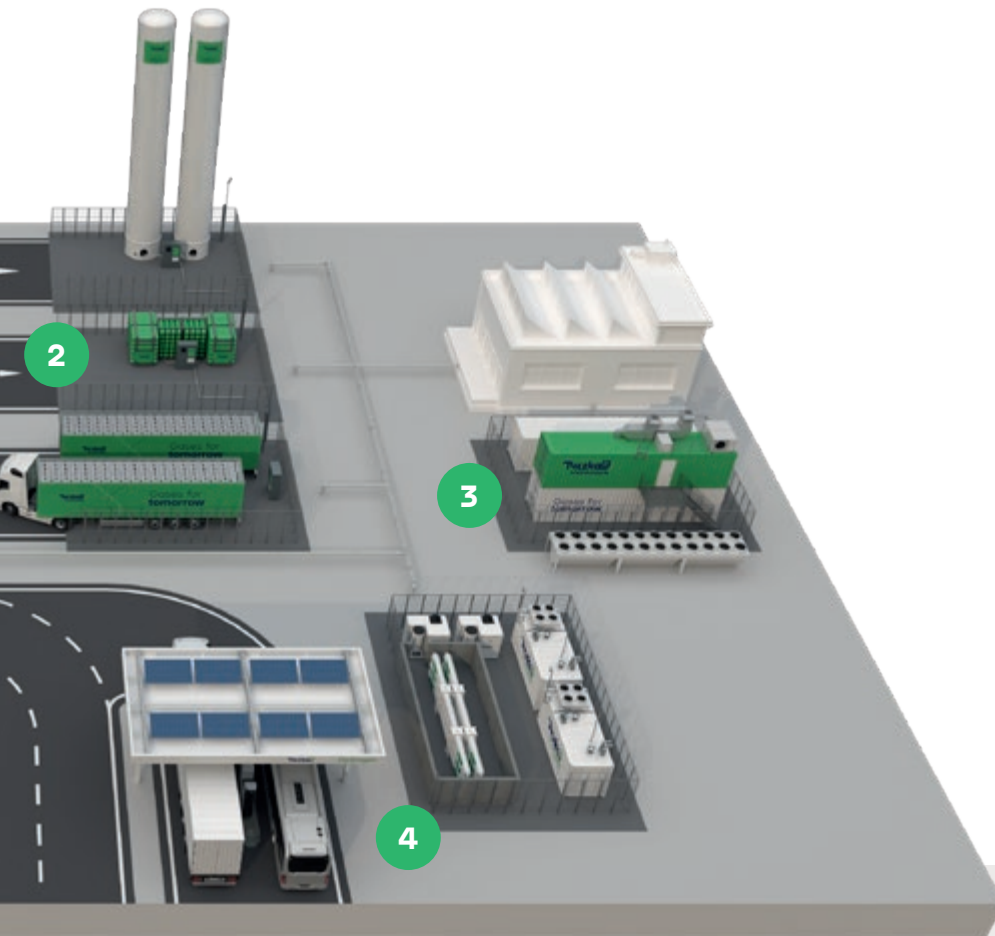
Hydrogen production

- We design, build and operate hydrogen production plants that use electrolysis technology for our growing production network.
- From these, we supply customers directly on-site via pipelines, or we fill our modern fleet of compressed gas trailers with hydrogen to supply regional markets.
- We develop regional solutions with our partners along the entire hydrogen value chain.
- If necessary, we also source the product from third parties and take care of filling, transport and storage to supply our customers.

2

Supply and marketing of bulk hydrogen

- We supply green and conventional hydrogen in Germany and neighbouring countries via compressed gas transported in trailers.
- We use a network of sources to ensure a high level of availability and offer a broad range of purities and certifications.
- We use the latest transport technology with high delivery volumes and low specific emissions.
- We work with you to develop optimal supply concepts based on our storage concepts.



3

On-site production operator models

- On-site generation with electrolysis can be an alternative to bulk supply via trailer. The advantages are less site traffic, cost optimisation, use of the by-products oxygen and heat, use of your own electricity.
- Working together with you, we examine your framework conditions to develop a concept for the generation and buffering of hydrogen at your location – including backup supply and operator models – and then put it into practice.
- In the operational phase, your only task is to use the product – we handle everything else.

4

Refuelling station and application technology

- Together with you and our technology partners, we develop and implement innovative, demand-oriented refuelling solutions based on rental and operator models on your company premises and beyond, while ensuring reliable hydrogen supply in practice.
- We support the implementation of your vehicle fleet projects – from forklifts and heavy-duty vehicles to regional trains.
- We advise you on the selection and design of your processes and associated application technologies, such as gas conditioning systems, burners, and fuel cell solutions.

Our supply and technology solutions flexible, scalable, practical, modern



Pressure tank installations

Our steel tanks have a maximum operating pressure of 45 bar and are ideal for long-term supply of medium to large quantities with moderate-pressure requirements.

- Internal volume up to 115 m³; height up to 21 m
- Usable amount up to approx. 434 kg hydrogen
- Can be set up horizontally or vertically
- Low maintenance



High-pressure packs (MaxiPacks)

Our stationary high-pressure bundles with a maximum operating pressure of 180 to 225 bar are ideal for high-pressure requirements, smaller quantities and gradual increases in demand.

- Base area from 4–8 m²; height from 1.8–2.8 m
- Usable amount of up to 90 kg hydrogen per MaxiPack
- MaxiPacks can be stacked on top of each other and expanded in modules



Trailer swap stations

Transport trailers for hydrogen are used to fill storage tanks, but can also be used for on-site storage as a swap concept or a multi-pressure supply system for refuelling stations.

- Based on innovative composite tanks (type 4) with a maximum operating pressure of 380 bar
- Capacity of over 1,200 kg of hydrogen enables efficient transport, even over longer distances
- Other capacities also available

Hydrogen refuelling stations (public and depot-based)

We design, build and operate hydrogen refuelling stations for various applications in transport and logistics.

- Turnkey systems with the appropriate technical solution from a single source
- Provision, hydrogen supply and, if desired, operation of depot refuelling stations by Tyczka Hydrogen, with public access optional
- Development and operation of public hydrogen refuelling stations at demand hubs
- Refuelling pressures of 350 and 700 bar with and without pre-cooling



On-site production operator models

For on-site supply at your premises, we offer the design, implementation and operation of production plants based on electrolysis – from a single source.

- Optimised operating strategy adapted to the individual needs / circumstances of the customer / location
- Ensuring the required hydrogen quality according to customer requirements
- Backup supply by Tyczka Hydrogen via trailer delivery from the production network



Application technology

Upon request, we can help you find the appropriate application technology for your individual needs in conjunction with supplying you with hydrogen. We will gladly advise you and put you in touch with cooperation partners from our broad network.

- Hydrogen-powered vehicles, such as forklifts and trucks, including the corresponding (optionally mobile) refuelling infrastructure
- Hydrogen-based cogeneration unit solutions
- Burners, heaters and other heat applications
- Gas mixing and conditioning – and much more



Wasserstoff-Quellen und Logistik flexible, efficient, high-performing

We rely on a broad and continuously growing network of hydrogen sources to ensure a high level of supply reliability for our customers. Hydrogen is sourced from both partners and joint venture projects, as well as – looking ahead – from our own production facilities. This approach ensures maximum flexibility and the best possible commercial conditions.

We are constantly expanding our network of sources and actively evaluating and developing new site options for hydrogen supply projects.

Our logistics concept is primarily based on high-capacity 45-foot trailers. Capacity and route planning are carried out at regular intervals and continuously optimized to guarantee reliable delivery and supply security, while enabling rapid response to any deviations.

Examples for green hydrogen sources



Schweinfurt/Bavaria

- Construction of a 5 MW electrolysis plant with filling station for trailers with planned commissioning at the end of 2026
- In addition, on-site supply for refuelling station for heavy-duty vehicles
- Project funded by the Bavarian Ministry of Economic Affairs (StMWi) as part of the funding programme for the development of an electrolysis infrastructure (BayFELI)



Pfeffenhausen/Bavaria

- Tyczka Hydrogen is a shareholder in Hy2B Wasserstoff GmbH.
- 5 MW electrolysis with trailer filling in cooperation with Hynergy Invest GmbH, BayWa AG, the districts of Landshut and Munich and the energy cooperatives Isar eG, Niederbayern eG and Unterhaching eG
- Project funded by the Federal Ministry of Transport within the HyLand Initiative



Völs/Austria

- Cooperation with MPREIS Hydrogen GmbH in Völs/Austria for hydrogen sourcing
- 3.2 MW electrolysis with trailer filling, built within EU project Demo4Grid
- Marketing of hydrogen in Germany, Austria and neighbouring countries

RFNBO-compliant hydrogen and other hydrogen qualities from Tyczka

**green
RFNBO**

- Produced from renewable energy sources and certified as a Renewable Fuel of Non-Biological Origin (RFNBO) in accordance with Commission Delegated Regulation (EU) 2023/1184 and the 37th German Federal Immission Control Ordinance (37. BImSchV)
- Distributor of RFNBO hydrogen and generator of GHG and RFNBO quotas in Germany
- Intermediary for the marketing of GHG and RFNBO quotas
- Tyczka Hydrogen is Europe's first RFNBO-certified trader according to CertifHy and has extensive experience in supplying RFNBO hydrogen with Proof of Sustainability (PoS)
- High process reliability ensured by an optimized and secure mass balancing system
- Compatibility with EU-recognized voluntary certification schemes, such as ISCC EU/RFNBO and REDcert EU/RFNBO



**green
certified**

- Produced from renewable energy sources and certified (e.g. Green Hydrogen according to CMS70 TÜV SÜD). Delivery is carried out physically, via mass balance, or on a book-and-claim basis.
- Under the book-and-claim model, guarantees of origin for green hydrogen from certified production facilities using renewable electricity are applied on a balancing basis.
- Our mass balancing and trading system is certified in accordance with the TÜV SÜD standard Handel-EE.



**green
unspecified**

- Produced from renewable energy sources. Delivery is carried out physically, via mass balance, or on a book-and-claim basis.

We also supply conventionally produced ('grey') hydrogen on request.

Our product qualities

We supply gaseous hydrogen in various qualities from 3.0 to 5.0 according to customer requirements. Hydrogen 3.7/FC is suitable for fuel cells in accordance with national and international specifications* and can be used as a fuel in the mobility sector.

Purity Class	H ₂ Vol.-%	N ₂ ppmv	O ₂ ppmv	CO+CO ₂ ppmv	KW ppmv	H ₂ O ppmv
Hydrogen 3.7/FC*	≥99.97	<300	<5	<2.2	<2	<5
Hydrogen 3.0	≥99.9	<1,000	<50	–	–	<100
Hydrogen 5.0	≥99.999	<5	<3	<1	<1	<5

% and ppm values are to be understood as ideal volume proportions
 * Specification according to DIN EN 17124, ISO/DIS 14687 (Type I/II D)

Services associated with your hydrogen requirements

- Technical advice on the concept and dimensioning of your supply solution for hydrogen from us
- Assistance with the approval process of your hydrogen installation
- Service and maintenance of your supply systems as required
- Telemetric remote monitoring of tank levels ensures the highest level of supply security.
- Digital processing of the supplier-customer interface



Our quality standards

- Over 100 years of experience in energy and industrial gases within the Tyczka Group as a family-owned, medium-sized company
- Highest safety standards, based on a group-wide system for Health, Safety, Environment, and Quality (HSEQ)
- Maximum security of supply ensured by a strong source network and optimized logistics
- Operations and cooperation in accordance with certified quality and environmental management standards (ISO 9001 / ISO 14001 certified since 2022)
- Comprehensive technological expertise across all project phases, from engineering and plant construction to operation
- Continuous advancement of the state of the art through active participation in industry committees and working groups
- Independence in component selection, ensuring the greatest customer benefit tailored to specific requirements
- A pragmatic, solution-oriented approach, combined with short response times and streamlined decision-making processes

A broad range of solutions for public transport and freight transport

Hydrogen-based propulsion systems are already an integral part of zero-emission mobility today. In public transport, hydrogen buses are the ideal solution for long routes and depots with limited grid connection capacity. In freight logistics, hydrogen-powered trucks and tractor units complement battery-electric drive-trains wherever long ranges and high utilization are required – independent of power availability at the home base or at rest areas.

Tyczka Hydrogen supports mobility projects throughout all phases, from initial planning to day-to-day operations.



Consulting and Services



Based on our in-depth market expertise and close cooperation with all relevant stakeholders, we advise and support you throughout all phases of your project:

- **Fleet operators:** Available vehicles, vehicle trials, total cost of ownership (TCO) analyses, refuelling concepts, and support with funding opportunities
- **Public transport operators and refuelling station operators:** Optimization of supply concepts and hydrogen refuelling station (HRS) operating strategies, as well as support with quota trading

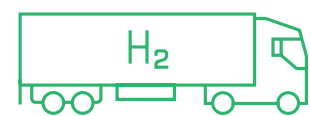
Refuelling stations under rental and operator models



We take care of your refuelling station through rental or operator models:

- Tailored solutions to meet your needs, ranging from balance-sheet-friendly rental models to all-inclusive, worry-free operator models
- Mobile, semi-stationary, and stationary refuelling solutions for every requirement

Supply of refuelling stations with RFNBO hydrogen



As pioneers in the trading of RFNBO hydrogen, we supply your refuelling station (depot-based or public) with hydrogen:

- Trailer swap or onsite filling of your stationary storage tanks
- High security of supply and greenhouse gas reduction, enabled by a broad source network and efficient logistics

Our public hydrogen refuelling station network actively

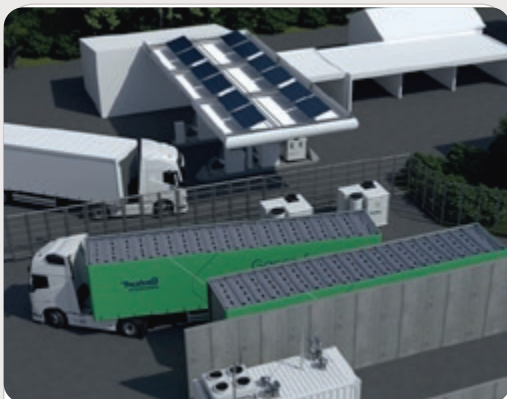


Giengen an der Brenz

- Status: in operation
- Commissioning: July 2024

- Publicly accessible 24/7 (Current status: <https://h2.live>)
- 350 and 700 bar refuelling for commercial vehicles
- Exclusively green hydrogen
- Attractive pricing
- Acceptance of fuel cards from H2 Mobility, DKV, BayWa, and Tyczka Hydrogen (commercial customers)
- Commitment to continued operation until at least 2030*
- Capacity of up to 1,000 kg within 24 hours

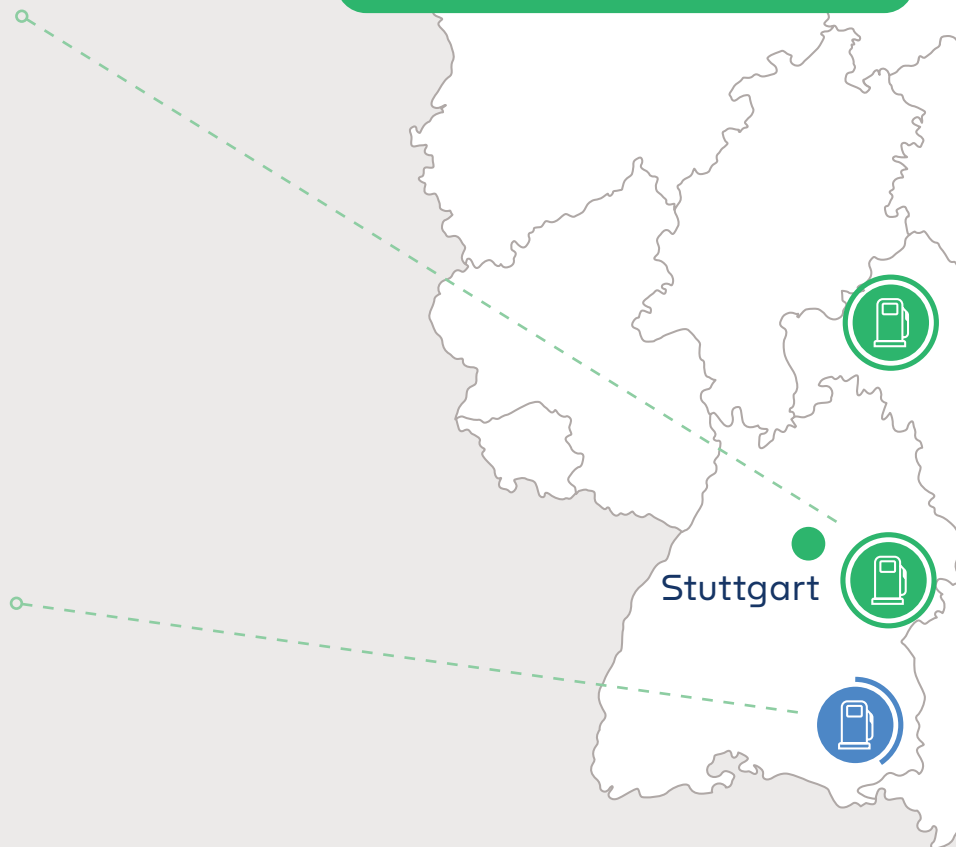
* Except Giengen an der Brenz



Ravensburg

- Status: under construction – planned opening: Q4 2026
- Partnership with Schindele Handel for marketing and commercialization

Funding provided by the Baden-Württemberg Ministry of the Environment, Climate Protection and the Energy Sector



drives the transition to hydrogen mobility.

Schweinfurt harbour

- Status: in operation
- Commissioning: March 2026

Bamberg (Hallstadt)

- Status: in operation
- Commissioning: August 2025

GVZ Augsburg

- Status: in operation
- Commissioning: June 2024

Your benefits with us

How we create value for you:

- We make hydrogen implementable – from the initial idea to a solution proven in real-world operation.
- We take responsibility along the entire value chain – from the source to the application.
- We think regionally and act reliably, delivering supply concepts that work today and are designed to grow tomorrow.
- We connect partners into integrated ecosystems – seamlessly linking supply and application.
- We are a partner on equal footing – pragmatic, experienced in practice, solution-oriented, and committed for the long term.



Memberships in initiatives and associations

national



Deutscher Wasserstoff-Verband



EIGA – European Industrial Gases Association



Hydrogen Europe



IGV – IndustrieGaseverband e. V.



Clean Energy Partnership

regional



Wasserstoff Bündnis Bayern



Plattform H2BW



H2BZ Netzwerk RLP e. V.



Cluster Brennstoffzelle BW



H2BZ Initiative Hessen e.V.



Wasserstoff Technologieregion Augsburg

Diverse experience and strong references in hydrogen supply

Public transport buses



Public refuelling stations



Intralogistics vehicles



Rail transport



Test facilities



Underground storage (salt caverns, porous reservoirs)



Source: STORAG ETZEL GmbH

Tyczka Group

Gases for tomorrow

Over 100 years of success and experience in handling gases characterise our actions. With our LPG, industrial gases and hydrogen, we are securing the future energy supply and driving the decarbonisation of our markets through innovative solutions. Our goal of actively contributing to a more sustainable world of tomorrow motivates us anew every day.

Gases for tomorrow is Tyczka's guiding principle. With offerings such as green air gases, biogenic LPG, green hydrogen and technological solutions, we support our customers in making their processes and products more sustainable and thus make our contribution to a better world of tomorrow.



Our experts will find the right solution
for your hydrogen requirements

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[More info](#)



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Status: April 2026
Version 4.1