

JOYGLOBAL



14CM Series

Continuous Miner

Product Overview





14CM Series

The JOY 14CM continuous miner product line has been developed to meet the high productivity requirements of today's underground mining industry and is the product of choice

Built to withstand rigorous conditions

for the world's top producing mines. Joy provides the ideal combination of cutting power, proven components and reliability for lower to mid-seam applications in a variety

of materials. Built to withstand rigorous conditions, the 14CM offers optimum service life and return on investment.

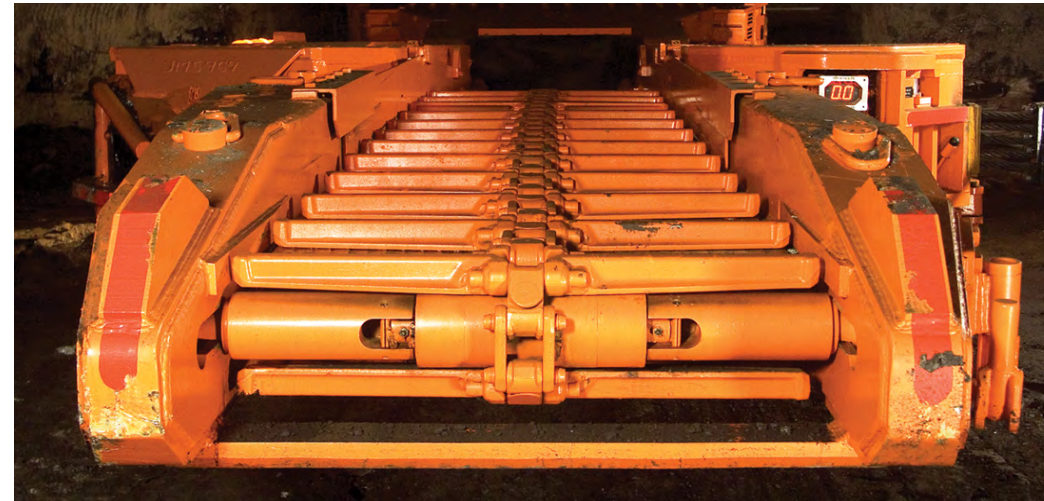
The basic elements of each continuous miner are similar in design, following field proven philosophies perfected by Joy over the years. Each machine employs Joy's multi-motor concept with outboard access to motors, gearcases, controllers and other major components. The philosophy calls for the isolation of major components for easier troubleshooting and maintenance. The continuous miners use individual motors with direct drive transmissions to power the cutter, traction, gathering and hydraulic systems. This permits service or repair to be completed quickly and easily, thus reducing downtime and maintenance costs.

WETHEAD Cutterhead Systems

The JOY WETHEAD continuous miner cutterhead incorporates a fine water spray behind each cutting bit on the cutter drums. Acting as both a cooling and wetting agent, the water reduces the potential for frictional ignitions and also reduces respirable dust levels. The water spray acts as both a cooling and wetting agent in order to address both issues at the same time. The sprays also provide lubrication that substantially improves bit life. The WETHEAD does all this while potentially consuming less water than the standard miner dust sprays.

The 14CM is available in solid head or Ripperveyor™ models and in drum diameters ranging from 30 to 44 inches or 762 to 1117 mm. The cutting system can be sized to match seam conditions. Rated cutting power as high as 590 hp (440 kW) is available within this product line.

Application Specific Cutting
A wide variety of cutting options...



SMARTConveyor

JOY's SMARTConveyor incorporates the latest sound abatement technologies to reduce sound output while improving maintainability. "Underground results show a 45% and 65% noise exposure reduction for the operator" when compared to a standard machine. (Mining Engineering, 2011, Vol. 63, No. 7, pp. 83) SMARTConveyor combines multiple technologies such as JOY's patented Dual Sprocket Conveyor Chain and auto-tensioning features to improve the operating environment. SMARTConveyor is currently available as an option on all continuous miner models.

SMARTZONE PROXIMITY SYSTEM

The JOY SMARTZONE PROXIMITY SYSTEM is an integrated training device that helps teach personnel to operate a continuous miner from safe working zones, and to otherwise stay clear of danger zones. Its unique ability to track, recognize and log operator movement around the machine provides an additional layer of analysis for in depth training initiatives. The SMARTZONE PROXIMITY SYSTEM option is currently available on all continuous miner models.

Total Control

The latest in VFD technology...

Today's 14CM traction system builds on years of field-tested performance to offer even more durability and continuous miner maneuverability. Patented OPTIDRIVE AC electronics are coupled to a compact all-gear transmission that provides smooth and reliable performance. Cutter motor feedback control loops and an electronic traction motor differential optimize sump performance in even the most demanding of applications. Various track frame widths are available to reduce ground bearing pressure and better suit specific floor conditions and entry widths.



Joy History

Tradition in Quality & Pride...

With over 6,000 continuous miners shipped since 1948, Joy leads the mining industry with innovations that increase productivity and improve operator safety. Innovations such as air scrubbers, Wethead cutterhead drums, AC traction motors, noise reducing conveyor systems, and hydraulics manifolds are just a few examples. All are industry firsts from Joy Mining Machinery, the world leader in underground mining innovations.





14CM Automation

The **FACEBOSS** control platform enables operators to consistently operate at the optimal balance of production rate and cost.

Competitive and market pressures require that Joy's customers produce product at an ever increasing rate and at an ever decreasing cost per ton. These objectives are made all the more challenging by the worsening attributes of available reserves and the ever deteriorating operating conditions in which machinery must operate.

Using a combination of operator assistance tools, automated sequences, advanced diagnostics, machine performance monitoring and analysis tools, the JOY FACEBOSS control platform enables operators to consistently operate their JOY machinery at the optimal balance of production rate and cost.

Product Optimization

The JOY FACEBOSS control platform can maximize continuous miner productivity in a variety of ways:

- **Optimized Cutting** Rate of cutting is automatically maximized during sump and shear cycles by ensuring optimal cutter loading through the control of the traction motor speed and hydraulic shear rate respectively.
- **High Availability Feedback** Control loops protect all electric motors on the continuous miner from jam and thermal overloads, ultimately extending motor life and minimizing machine downtime.

Reliability Through Design

All FACEBOSS hardware has been designed and tested specifically for underground applications. Testing at extreme temperatures and vibration levels ensures that each component can stand up to harsh conditions. Further testing to destruction in atypical conditions allows Joy engineers to better understand the failure modes of each component in order to improve the overall design and reliability.

Multilingual Display

On a Standard Control Platform...

The JOY FACEBOSS control platform can be configured to display a variety of languages. In combination with local field personnel, this multilingual control platform helps JOY equipment to achieve the goal of operating at the lowest cost per ton, regardless of where the equipment is located.

This platform is standard across all JOY equipment, reducing inventory to support a typical fleet. Common practices reduce training burdens and overall knowledge required for electrical maintenance personnel. This enables maintenance and trouble-shooting performance to rise to a more productive level.



Outby Communications

With the JOY continuous miner connected to a surface computer, the FACEBOSS control platform enables the real-time monitoring of the machine from remote locations (Remote Machine Monitoring - RMM).

In addition to RMM, the FACEBOSS control platform continuously buffers and streams operating data to the surface computer. The surface computer, installed with JOY Surface Reporting Software (JSRP), interprets this data and generates value-added production reports directly following each shift and emails the report to the appropriate mine/Joy individuals. This feedback mechanism allows management to intervene where required to make positive change. Similarly, monthly production and engineering reports are generated and communicated to provide a higher-level interpretation of the operation.

Advanced Diagnostics

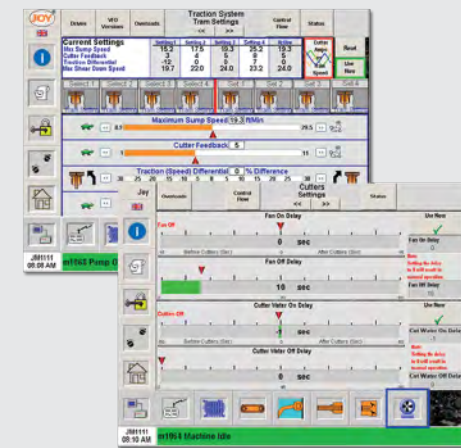
The JOY FACEBOSS control platform includes an on-board graphical display which includes a log of events, messages and alarms. All key machine operating parameters are continuously monitored and recorded during machine operation. By using the on-board trending and graphing capability on this stored information, the root cause of machine failure can be quickly and easily determined.

For quick and easy reference, on-board service manuals are accessible through the on-board display. Supplementary to the service manual are step-by-step instructions for regular maintenance operations and help text for systematic trouble shooting.

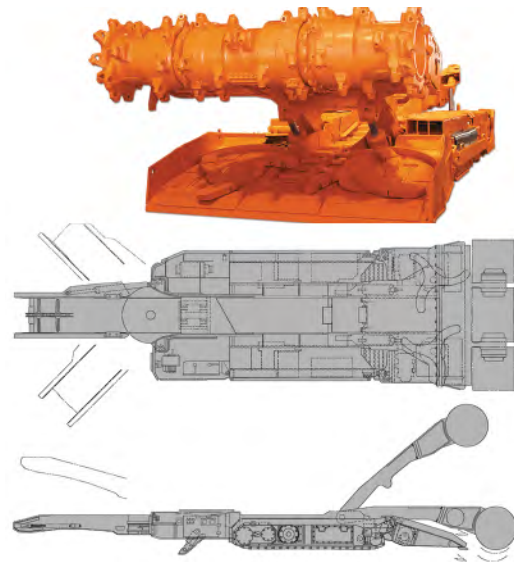
User Friendly Interface

Machine Setup/Configuration...

Graphical on-board interface with intuitive screens simplifies initial machine setup. These same screens make it easy to adapt to changing mining conditions without the need to open an XP enclosure. In addition, preset tram functions can be selected from the remote to allow the operator to make on the fly cutter feedback adjustments as conditions dictate. The roof and floor cutting limits used with automation sequences are conveniently adjusted via the remote.

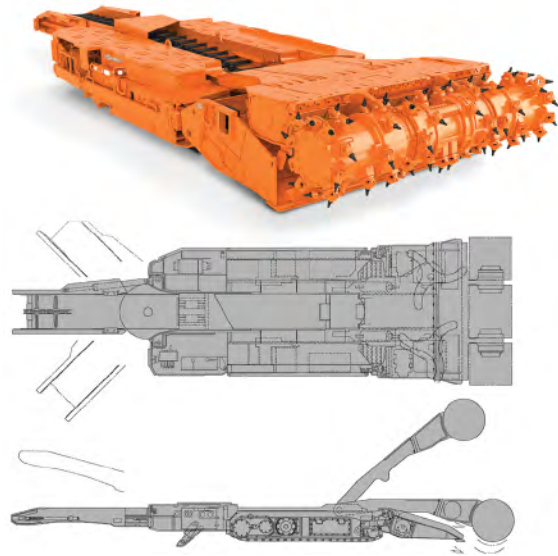


JOY 14CM10 & 14CM9 Continuous Miner



		14CM10AA		14CM9A	
Loading Rate		10-21 ton/min	9-19 tonne/min	10-21 ton/min	9-19 tonne/min
Cutter Head Diameter (Optional)		30 in (28 in)	763 mm (711 mm)	34 in (32 in)	865 mm (813 mm)
Conveyor	Width	30 in	762 mm	30 in	762 mm
	Chassis Depth	8 in	203 mm	8 in	203 mm
	Chain Pitch	3 ¼ in	83 mm	3 ¼ in	82 mm
	Speed Options	402 fpm 475 fpm	123 m/min 145 m/min	402 fpm 475 fpm	123 m/min 145 m/min
Crawler Chain	Width	20 in	508 mm	20 in	508 mm
	Pitch	7 in	178 mm	7 in	178 mm
Cutter Drums	JOY Bit Blocks, Spacing	2 ¼ in	57 mm	2 ¼ in	57 mm
Cutting Width		10 ft 10 in	3302 mm	11 ft 0 in	3350 mm
Ground Pressure		26.8 psi	184 kPa	25.4 psi	175 kPa
Weight		118,000 lbs	53,636 kg	112,000 lbs	53,636 kg
Maximum Cutting Height		122 in	3099 mm	91 ½ in	2324 mm
Minimum Cutting Height		38 in	965 mm	32 in	812 mm
Basic Chassis Height		28 ½ in	725 mm	25 ½ in	648 mm
Height at Boom Pivot		28 ½ in	725 mm	28 ¼ in	718 mm
Ground Clearance		6 in	152 mm	6 in	152 mm
Sump Range		0-25 fpm	0-7.6 m/min	0-25 fpm	0-7.6 m/min
Tram Speed	Slow	15 fpm	4.6 m/min	15 fpm	4.6 m/min
	Intermediate	30 fpm	9.1 m/min	30 fpm	9.1 m/min
	High	65 fpm	19.8 m/min	65 fpm	19.8 m/min
	Turbo	85 fpm	26 m/min	85 fpm	26 m/min
Gathering Arm Speed		51 or 60 rpm	51 or 60 rpm	45 or 54 rpm	45 or 54 rpm
Cutter Speed		81 fpm	81 m/min	64 rpm	64 rpm
Bit Tip Speed		593 fpm	180 m/min	640 fpm	197 m/min
Motors (Water Cooled)					
950 Volt, 60 Hz					
Cutter - 2		165 hp	123 kW	201 hp	150 kW
Pump - 1		40 hp	30 kW	40 hp	30 kW
Gathering Head - 2		67 hp	50 kW	67 hp	50 kW
Traction (OPTIDRIVE) - 2		80 hp	60 kW	80 hp	60 kW
Total Power (OPTIDRIVE)		664 hp	496 kW	736 hp	550 kW

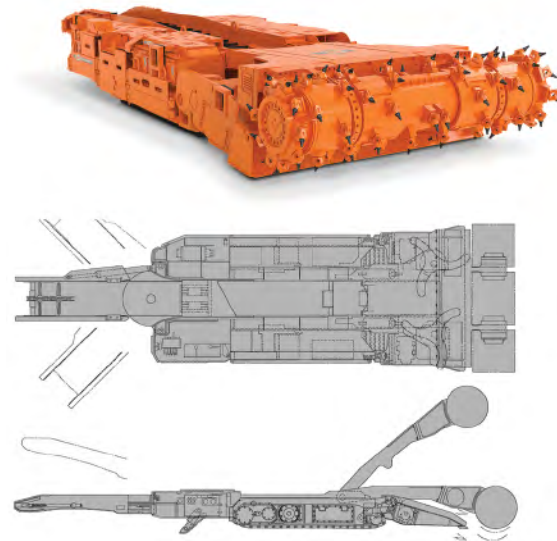
JOY 14CM15 Continuous Miner



		14CM15CC		14CM15C		14CM15B		14CM15D		14CM15E	
Loading Rate		11-31 ton/min	10-28 tonne/min	11-31 ton/min	10-28 tonne/min	11-31 ton/min	10-28 tonne/min	11-31 ton/min	10-28 tonne/min	11-31 ton/min	10-28 tonne/min
Cutter Head Diameter (Optional)		38 in	965 mm	38 in	965 mm	38 in	965 mm	44 in	1118 mm	44 in	1118 mm
Conveyor	Width	38 in	965 mm	38 in	965 mm	38 in	965 mm	38 in	965 mm	38 in	965 mm
	Chassis Depth	8 in	203 mm	8 in	203 mm	8 in	203 mm	8 in	203 mm	8 in	203 mm
	Chain Pitch	3 ¼ in	83 mm	3 ¼ in	83 mm	3 ¼ in	83 mm	3 ¼ in	83 mm	3 ¼ in	83 mm
	Speed Options	402 fpm 475 fpm	123 m/min 145 m/min	402 fpm 475 fpm	123 m/min 145 m/min	402 fpm 475 fpm	123 m/min 145 m/min	402 fpm 475 fpm	123 m/min 145 m/min	402 fpm 475 fpm	123 m/min 145 m/min
Crawler Chain	Width	20 in	508 mm	20 in	508 mm	20 in	508 mm	20 in	508 mm	20 in	508 mm
	Pitch	7 in	178 mm	7 in	178 mm	7 in	178 mm	7 in	178 mm	7 in	178 mm
Cutter Drums	JOY Bit Blocks, Spacing	2 ¼ in	57 mm	2 ¼ in	57 mm	2 ¼ in	57 mm	2 ¼ in	57 mm	2 ¼ in	57 mm
	Cutting Width	10 ft 10 in	3302 mm	11 ft 6 in	3505 mm	11 ft 6 in	3505 mm	11 ft 6 in	3505 mm	10 ft 6 in	3505 mm
Ground Pressure	Weight	28.2 psi 124,000 lbs	194 kPa 55k kg	28.4 psi 125,000 lbs	196 kPa 55,000 kg	28.4 psi 125,000 lbs	196 kPa 55,000 kg	28.9 psi 127,000 lbs	199 kPa 57,727 kg	29.1 psi 128,000 lbs	200 kPa 58,181 kg
	Maximum Cutting Height	91 ½ in	2324 mm	120 in	3048 mm	122 in	3099 mm	126 in	3200 mm	1296 in	3277 mm
Minimum Cutting Height		38 in	965 mm	36 in	914 mm	36 in	914 mm	45 in	1143 mm	48 in	1219 mm
Basic Chassis Height	Height at Boom Pivot	25 ½ in	648 mm	25 ½ in	648 mm	28 ½ in	724 mm	28 ½ in	724 mm	31 ½ in	800 mm
	Height at Boom Pivot	28 ¼ in	718 mm	28 ¼ in	718 mm	31 ¼ in	794 mm	31 ¼ in	794 mm	34 ¼ in	870 mm
	Ground Clearance	6 in	152 mm	9 in	152 mm	9 in	229 mm	9 in	229 mm	12 in	305 mm
Sump Range		0-25 fpm	0-7.6 m/min	0-25 fpm	0-7.6 m/min	0-25 fpm	0-7.6 m/min	0-25 fpm	0-7.6 m/min	0-25 fpm	0-7.6 m/min
Tram Speed	Slow	15 fpm	4.6 m/min	15 fpm	4.6 m/min	15 fpm	4.6 m/min	15 fpm	4.6 m/min	15 fpm	4.6 m/min
	Intermediate	30 fpm	9.1 m/min	30 fpm	9.1 m/min	30 fpm	9.1 m/min	30 fpm	9.1 m/min	30 fpm	9.1 m/min
	High	65 fpm	19.8 m/min	65 fpm	19.8 m/min	65 fpm	19.8 m/min	65 fpm	19.8 m/min	65 fpm	19.8 m/min
	Turbo	85 fpm	26 m/min	85 fpm	26 m/min	85 fpm	26 m/min	85 fpm	26 m/min	85 fpm	26 m/min
Gathering Arm Speed		45 or 54 rpm	45 or 54 rpm	45 or 54 rpm	45 or 54 rpm	45 or 54 rpm	45 or 54 rpm	45 or 54 rpm	45 or 54 rpm	45 or 54 rpm	45 or 54 rpm
Cutter Speed		64 fpm	64 m/min	64 fpm	64 m/min	64 fpm	64 m/min	64 fpm	64 m/min	64 fpm	64 m/min
Bit Tip Speed		608 fpm	185 m/min	608 fpm	185 m/min	608 fpm	185 m/min	690 fpm	210 m/min	690 fpm	210 m/min
Motors (Water Cooled)											
950 Volt, 60 Hz											
Cutter - 2		235 hp	175 kW	235 hp	175 kW	235 hp	175 kW	235 hp	175 kW	235 hp	175 kW
Pump - 1		40 hp	30 kW	40 hp	30 kW	40 hp	30 kW	40 hp	30 kW	40 hp	30 kW
Gathering Head - 2		67 hp	50 kW	67 hp	50 kW	67 hp	50 kW	67 hp	50 kW	67 hp	50 kW
Traction (OPTIDRIVE) - 2		80 hp	60 kW	80 hp	60 kW	80 hp	60 kW	80 hp	60 kW	80 hp	60 kW
Total Power (OPTIDRIVE)		804 hp	600 kW	804 hp	600 kW	804 hp	600 kW	804 hp	600 kW	804 hp	600 kW
950/1050 Volt, 50 Hz											
Cutter - 2		228 hp	170 kW	228 hp	170 kW	228 hp	170 kW	228 hp	170 kW	228 hp	170 kW
Pump - 1		54 hp	40 kW	54 hp	40 kW	54 hp	40 kW	54 hp	40 kW	54 hp	40 kW
Gathering Head - 2		60 hp	45 kW	60 hp	45 kW	60 hp	45 kW	60 hp	45 kW	60 hp	45 kW
Traction (OPTIDRIVE) - 2		80 hp	60 kW	80 hp	60 kW	80 hp	60 kW	80 hp	60 kW	80 hp	60 kW
Total Power (OPTIDRIVE)		790 hp	590 kW	790 hp	590 kW	790 hp	590 kW	790 hp	590 kW	790 hp	590 kW

JOY 14CM27 Continuous Miner

14CM27



Loading Rate		15-40 ton/min	17-36 tonne/min
Cutter Head Diameter		44 in	1118 mm
Optional		39 in	1000 mm
Conveyor	Width	38 in	965 mm
	Chassis Depth	12 in	300 mm
	Chain Pitch	3 ¼ in	83 mm
	Speed	475 fpm	145 m/min
Crawler Chain	Width	22 in	560 mm
	Pitch	7 ¼ in	184 mm
Cutter Drums	JOY Bit Blocks, Spacing	3 ¾ in	95 mm
	Cutting Width	11 ft 6 in	3500 mm
Ground Pressure		30 psi	207 kPa
	Weight	148,000 lbs	67,272 kg
Maximum Cutting Height		11 ft 2 in	3400 mm
	Minimum Cutting Height	39 in	1000 mm
Basic Chassis Height		44 in	1118 mm
	Optional	39 in	1000 mm
Height at Boom Pivot			
	Ground Clearance	8 or 12 in	200 or 300 mm
Sump Range		0-25 fpm	0-7.6 m/min
Tram Speed	Slow	15 fpm	4.6 m/min
	Intermediate	45 fpm	13.7 m/min
	Standard	65 fpm	19.8 m/min
	High (Optional)	85 fpm	26 m/min
Gathering Arm Speed		54 rpm	54 rpm
Cutter Speed		60 fpm	60 m/min
Bit Tip Speed		691 fpm	3.51 m/s
	Optional	618 fpm	3.14 m/s

Motors (Water Cooled)

950 Volt, 60 Hz		
Cutter - 2	268 hp	185 kW
Pump - 1	54 hp	40 kW
Gathering Head - 2	67 hp	50 kW
Traction (OPTIDRIVE) - 2	80 hp	60 kW
Total Power (OPTIDRIVE)	884 hp	630 kW
950/1050 Volt, 50 Hz		
Cutter - 2	248 hp	185 kW
Pump - 1	54 hp	40 kW
Gathering Head - 2	60 hp	45 kW
Traction (OPTIDRIVE) - 2	80 hp	60 kW
Total Power (OPTIDRIVE)	830 hp	620 kW
2300 Volt, 60 Hz		
Cutter - 2	295 hp	220 kW
Pump - 1	47 hp	35 kW
Gathering Head - 2	67 hp	50 kW
Traction (OPTIDRIVE) - 2	80 hp	60 kW
Total Power (OPTIDRIVE)	931 hp	695 kW

Smart Services

JOY Smart Services combines all of Joy's value-added offerings into one package, under one roof as an integrated solution to our customers. The facilities and services feature technological advancements in

processes/system optimization with 24-hour support.*

Our service strategies are delivering responsive and competitive service solutions,

Smart Services vision is our Performance Life Cycle Management (PLCM) strategy, which brings together all of the innovative people, services and products that Joy has to offer.*

Performance Life Cycle Management focuses these services, to align with our customers' needs, cultivating a zero harm mentality and delivering the highest productivity at the lowest cost per ton, from the time you receive your new equipment for the entire life cycle of the equipment.

Joy Global service facilities have given world class service a new home.

prognostics, remote health monitoring, reliability and asset management, advanced training and integration of mining

meeting the needs of our customers and driving unprecedented value in our customers' operations. At the core of Joy's



Health Management - State of the art predictive software analyzes the data streamed from your machines. The software predicts malfunctions, failures or process gaps at the earliest instance.

- Application Optimization
- 24/7 Product Support
- Health Management
- Performance Life Cycle Management
- Advanced Technical Training
- Technology Products
- Genuine Service Products
- Reliability
- Asset Revitalization & Rebuilds
- 24/7 Parts & Logistics
- Interactive Information Delivery

*All services are not yet available in all regions of the world.



JOYGLOBAL



All Joy Global products and services are sold subject to Joy's standard terms and conditions of sale, including its limited warranty. These will be furnished upon request. The company reserves the right to alter or improve the design or construction of its machinery as described herein and to furnish it, when so altered, without reference to the illustrations or descriptions in this bulletin.

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