WIKA

ISA WIKA Presentation

Smart in sensing

WIKA – Worldwide Presence

Think Global – Act Local

The WIKA group is a worldwide leader in pressure and temperature measurement. The company also sets the standard in the measurement of level, force and flow, and in calibration technology

76	45	14
Years	Subsidiaries	Production sites
40+	10%	10K+
Calibration labs	Of turnover in R&D	Employees

WIKA India at a glance

In India Since **1997**

NABL Accredited

Advanced **Technology**

Certified **Quality**

Testing Infrastructure

Technical **Support**

26	4	4	1200+	60000 m^2
Years	**Plants**	**Labs**	**Employees**	**Area**

WIKA FARIDABAD	WIKA PUNE	WIKA GHAZIABAD	WIKA CHENNAI
			
Total employees – 354 Total area (sq.ft)- 91924	Total employees – 458 5 Plants Total area (sq.ft) - 260500	Total employees – 132 Total area (sq.ft) 214693	Total employees – 175 2 Plants Total area (sq.ft) 112000

WIKA - Engineered Excellence:

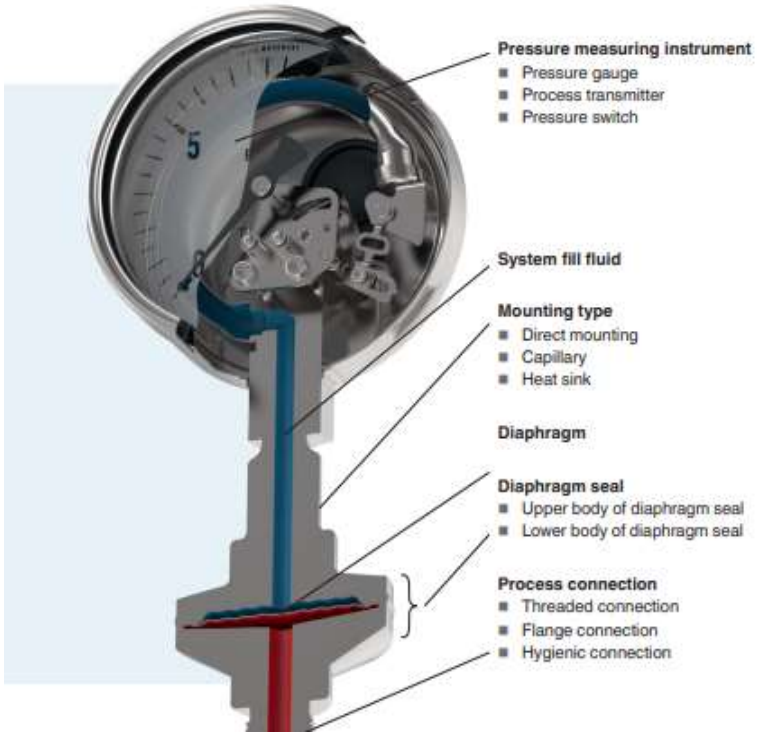
WIKA's one stop Diaphragm Seal Solutions for Fertiliser, Food & Pharma

International Society of Automation
Delhi Section

Setting the Standard for Automation™

ISA-D: “Fertiliser , Food and Pharma Symposium-2023”

Diaphragm Seals



Material & Coatings

Materials	Unified numbering system (UNS)
Tantalum	R05200
Hastelloy C276 2.4819	N10276
Hastelloy C22 2.4602	N06022
Inconel 600 2.4816	N06600
Incoloy 825 2.4858	N08825
Inconel 625 2.4856	N06625
Monel 400 2.4360	N04400
Nickel 200 (2.4066)	N02200
Nickel 201 (2.4068)	N02201
Titanium 3.7035 (class 2)	R50400
Titanium 3.7235 (class 7)	R52400
Stainless steel 1.4404 (316L)	S31603
Stainless steel 1.4435 (316L)	S31603
Stainless steel 1.4539 (904L)	N08904
Stainless steel 1.4541 (321)	S32100
Stainless steel 1.4571 (316Ti)	S31635
Stainless steel 1.4304 (304L)	S30403
Stainless steel 1.4466 (urea grade)	S31050
Stainless steel 1.4542 (630)	S17400
Duplex 2205 1.4462	S31803
Superduplex 1.4410	S32750
Zirconium	R58120

Coatings
Stainless steel with ECTFE
Stainless steel with PFA (FDA; 21 CFR 177.1550 and 21 CFR 177.2440)
Stainless steel with antistatic PFA (suitable for Ex applications)
Stainless steel with gold plating, various coating thicknesses: ~6, 25, 40 µm
Stainless steel with gold-rhodium (gold ~4 µm, rhodium ~0.1 … ~0.2 µm)
Stainless steel with Wikaramic®

WIKA - Wide range of products

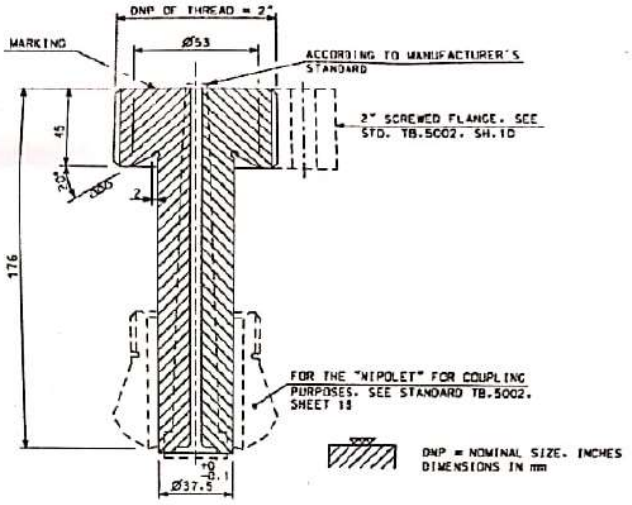
Pressure gauge with Urea Grade diaphragm seal

Application:

- To measure Carbamate pump discharge pressure

Diaphragm Seals

Design



Material:

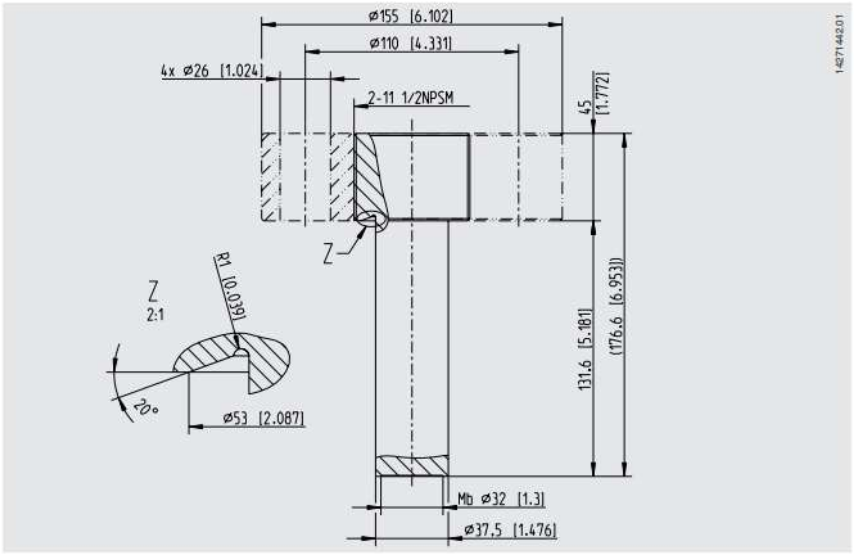
- ASTM A 182F 316L UREA GRADE (according to Snamprogetti SPC.CR.UR.510 Rev.3)

WIKA models for Urea

Diaphragm seal for flange connection
Thread-type with extended diaphragm, urea applications
Model 990.49

WIKA data sheet DS 99.46

Threaded connection following NPSM pipe thread, ASME B1.20.1



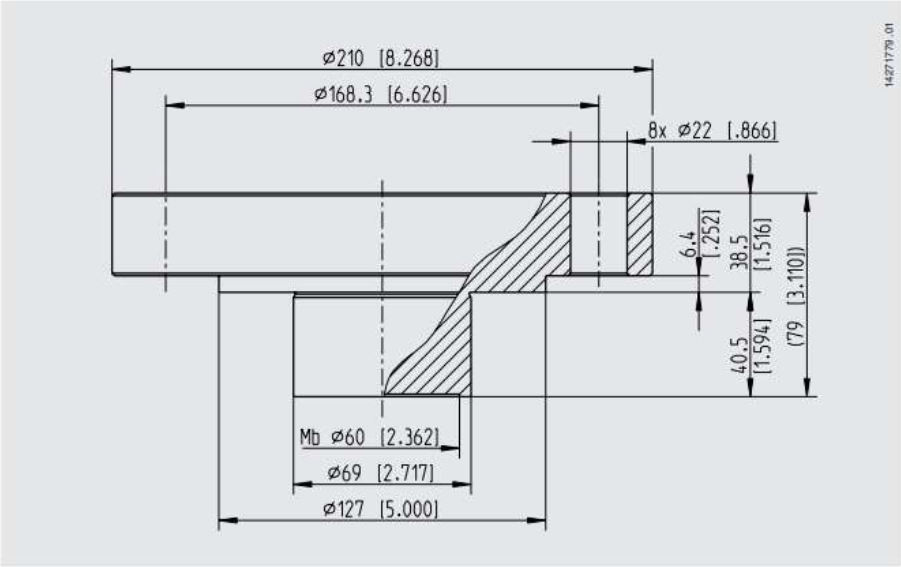
Other dimensions on request

WIKA models for Urea

Diaphragm seal with flange connection
Flange-type with extended diaphragm, urea applications
Model 990.48

WIKA data sheet DS 99.48

Flange connection following ASME B 16.5



Other dimensions on request

Replacement Service for Diaphragm seal systems with Process transmitters

Diaphragm seal Replacement Service

WIKA carries out a functional testing and ensures that your process transmitter is working perfectly.

During service, the capillary length can be optimised, with which the reaction time can be improved.

The system fill fluid can be changed, if necessary.

If it is needed for your application, the material of the wetted parts can be changed; new material certificates are also possible.

Advantages of our replacement service

Only in rare cases whole diaphragm seal systems be replaced completely. With the testing and replacement, WIKA offers you a service package with clear cost savings through the further utilization of your existing process transmitter.

Further advantages

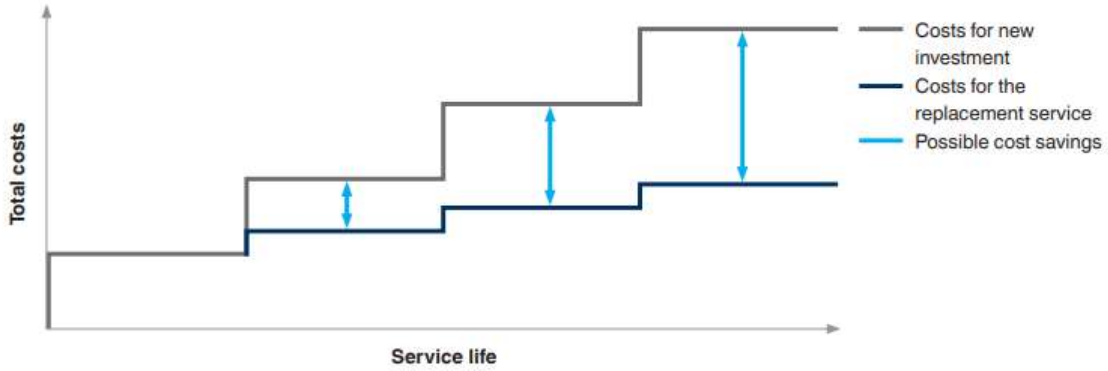
- New calibration of the system
- Hydrostatic pressure test for differe3ntial pressure
- Current material certificate
- Current approvals, e.g. for refineries
- State-of-the-art weld seam at the system (AD 2000)

Less Lead Time

Changes can be done

Cost saving

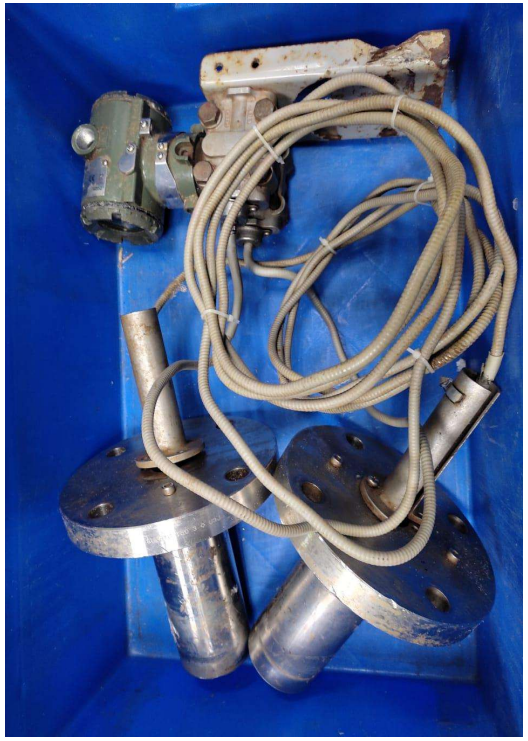
Typical development of costs for diaphragm seal systems with process transmitters



With the replacement service, the total costs of the diaphragm seal system can be clearly lowered. In this way, the service life of the process transmitters can be fully utilized and only the diaphragm seal and the assembly parts needs replacement, preventatively or after failure.

Let's See!

Before ☹



After ☺

WIKA

Instrumentation for Food and Pharmaceutical industry

WIKA

Smart in sensing

WIKA – Well connected

Technology Network

Driving Standards and Future Solutions with Partner Organizations

- WIKA is a member of EHEDG's Subgroup Sensors, contributing to Doc. 37 Sensors.
- Active contribution in ASME BPE's PI working group for pressure instruments.
- Engaged in VDMA's food processing and packaging machines working committee, Europe's largest engineering network.
- Participation in 3-A Sanitary Standards, Inc. Subgroup No.7 – Instruments.
- Supporting dairy industry projects at Technical University of Munich and University of Hohenheim/Stuttgart.
- Research collaboration with the BioProcess Institute Rhode Island, USA, for optimal bio-pharma instrumentation.

Advanced instrumentation and hygienic designs to support GMP requirements

- Risk prevention
- Cost Savings

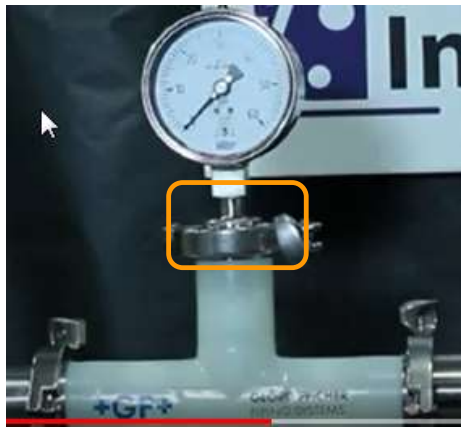
WIKA – Risk saving

Hygienic design: Avoid Dead legs Have a look to T-installation

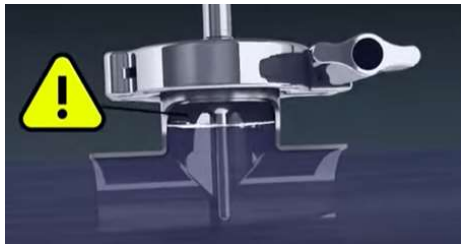
Investigation from the BioProcess Institute / Rhode Island / USA

- Dead legs can create air pockets
- Where a pockets occur, the steam could not sterilize the surface
- Hygienic Risk!

Solution: Dead space free instrumentation



Air pocket in a T-piece
https://www.youtube.com/watch?v=WZKOXtmbKlo&list=PLPEC06ETtG5jCXoj7cEDTCT--3yowPIVA



WIKA - Solution

Dead space free measurement hygienic instrumentation

In-Line
Temperature sensor

In-Line
Diaphragm seal

Old solution

WIKA
Patent Nr.
DE 10 2009 048 559

Application examples: In-line instrumentation

Pressure and Temperature Installation

- Example of installation for pressure and temperature.
- ATEX approved for inflammable solvents, suitable for purification processes.

Mechanical Differential Pressure Monitor

- Integration into the filtration process.
- Illustrates the use of a mechanical differential pressure monitor

Diaphragm damage what to do?

No 1: Mechanical Damage

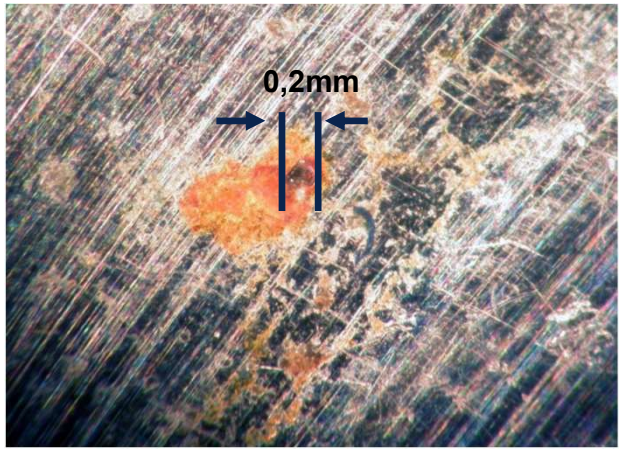
- a) Testing the instrument by pressing with the thumb on the diaphragm.
- b) Attempting to loosen a stuck gasket with a screwdriver, leading to diaphragm damage.

No 2: Abnormal Process Conditions

- a) Cavitation as a potential cause for diaphragm breakage.
- b) Water hammer contributing to abnormal stress on the diaphragm.

No 3: Pitting Corrosion

- Identified as a cause for diaphragm failure.



Destruction of the diaphragm via pitting corrosion

Mechanical damage

WIKA - Solution

Diaphragm monitoring system

WIKA's patented double-diaphragm design is the solution for critical processes where neither the medium should find its way into the environment, nor should the system fill fluid find its way into the product. In the event of a diaphragm seal and the process. The measuring task can still be performed. Time to act – without any risk for the process.

DMS27

Diaphragm monitoring system with flange connection

PATENTED

US 2018180505,
DE 102016015447,
CN 108240885

Process connection	Flange connection
Application	Process industry, with high measuring requirements
Material	Hastelloy
Data sheet	DS 95.23

DMS34

Diaphragm monitoring system with threaded connection

PATENTED

US 2018180505,
DE 102016015447,
CN 108240885

Process connection	Threaded connection
Application	Process industry
Material	Monel
Data sheet	DS 95.18

DMS-FP

Diaphragm monitoring system with hygienic connection

PATENTED

US 2018180505,
DE 102016015447,
CN 108240885

Process connection	Clamp connection per DIN 32676
Application	Sanitary applications
Material	Stainless steel 1.4435 (316L), UNS S31603
Data sheet	DS 95.20

Solution: Diaphragm Monitoring System

The Diaphragm Monitoring system

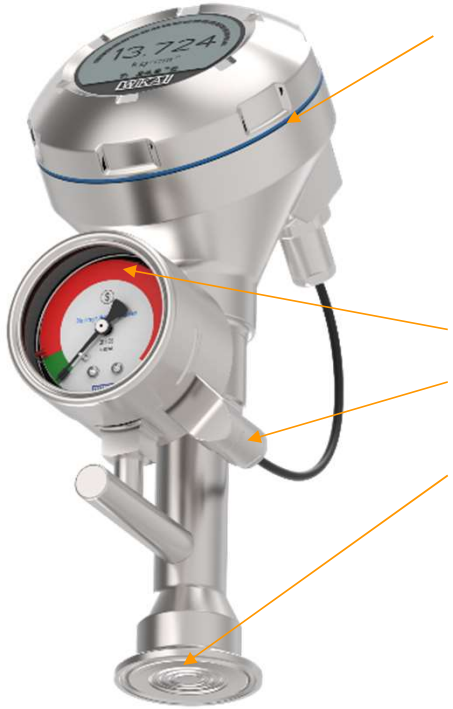
A Combination of:

- Measuring instrument
- Diaphragm seal with double diaphragm
- Monitoring element

Principle:

In the event of a diaphragm rupture the vacuum between the two diaphragms disappears. The indicator shows a diaphragm break (red area) and switch (alarm output) opens the safety loop.

The pressure measuring instrument still shows the process pressure.



Pressure measuring instrument

- Pressure transmitter
- Digital gauge
- Switch gauge

Monitoring element

- Local indication
- Alarm switch

Diaphragm seal

- Process connection
- With double diaphragm

Solution: Diaphragm Monitoring System

Risk prevention:

- The measuring task can still be performed
- Time to act – without any risk for the process
- Monitoring element indicates even smallest diaphragm ruptures (which could not be seen by the naked eye)
- Get a time stamp for the event of a diaphragm break
- No undetected microbiological growth (spoilage) behind a broken diaphragm
- One to one replacement - only one wire to the PLC required
- Applications you find in hot WFI-Systens, Clean Steam Production, etc

DMSU21SA

Monitoring element

- Local indication
  - Pointer in the green area: OK
  - Pointer in the red area: diaphragm break!

- Alarm switch
  - Failure mode signal: Output 3.5 mA
  - HART® Status (Diaphragm rupture)

Save time, energy, batch loss, cleaning chemicals and production time

Mechanical Gauge PG43SA-D

Gauge for pure mechanic solution

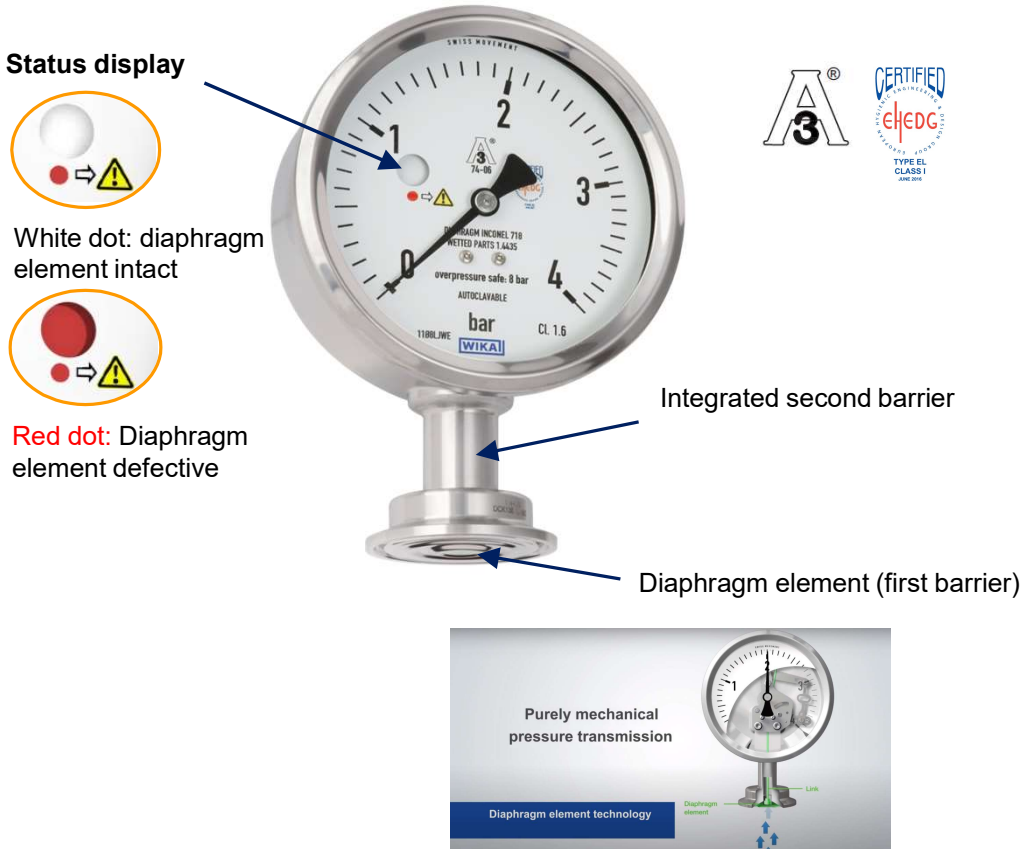
- Transport tanks
- Mechanical gauges in the line

High-quality mechanics

- Purely mechanical measuring principle
- “Dry measuring cell“
- No contamination with transmission fluid

Robust and high overpressure safety

- Overpressure safety up to 5 times of the nominal pressure
- Durable hardened diaphragm element material
- Reduced danger to damage diaphragm



Collaboration for innovative solutions

Didn't find the right solution for your process requirements?

- In close partnerships, we develop customer-specific solutions and provide long-term security of supply
- Individuality through tailored instrumentation designs corresponding to your process needs
- Individual service and IIoT solutions according to your processes and infrastructure
- Working with you - we'll find the right concepts for your requirements
- When it’s tough and challenging – we like to solve the measuring task

Is there something you didn’t get solved?

Smart in sensing

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Thank You

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