



*Bringing Reliable Technology  
and Quality Services*



CERT. NO : 18ACM14946Q

## General Company Information

Ver. 02.23

# PT TRI ANDALAN SERVINDO

[www.triandalan.com](http://www.triandalan.com)



## Core Customer



Offshore



Refineries



Upstream



Petrochem



Power Gen



General Industries



Bringing Reliable Technology  
and Quality Services

## Company Background

- Tri Andalan Servindo (TAS) was established in 2016  
Head Quarter → Tangerang - Sales & Workshop, 1500 M2  
Sales Office → Dumai, PKU, Palembang, Cilegon, CLP, Surabaya  
Facilities → HQ Workshop is for fabrication and repair of rotating equipment parts, mechanical seal parts, heat exchanger, vessel (API 682 Plan 23/ 52/ 53/ 65) and general metal parts.
- TAS has appointed as authorized distributor/ agent for SPP Pump, RODELTA Pump API 610 - Netherland, Johnson Controls Inc. - USA, CDI Oilfield Service - Romania, David Brown Santasalo - UK, Revalve, Watson Marlow Fluid Technology Solutions, Andritz Separation
- TAS is committed to providing 24/7 service and technical support to our valued customers with great satisfaction

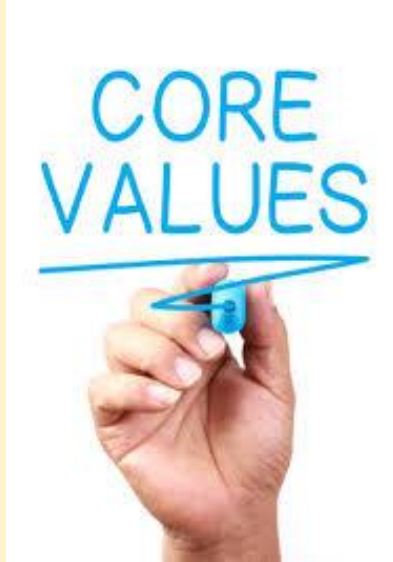
## Core Business



# Vision & Mission - Values



*Bringing Reliable Technology  
and Quality Services*



- Customer Focused - Excellent services
- Growth & Winning mindset - go beyond
- Ethical - Create culture of honesty
- Respect diversity
- We are one team - Build positive & family spirit
- Integrity - Be real
- Value creation

## **VISION :**

TAS has a vision to provide a high quality Products & Services to customers in the field of Sealing & Flow Systems for Rotating and Static Equipment in various industries.

## **MISSION :**

To reach this vision, TAS indicates a strategic approach to :

- Improve service excellence in order to meet our customer's cost effectiveness
- Create a safety environment to ensure the well-being and security of our staffs and clients
- Strengthening our process to increase efficiency in our products and services

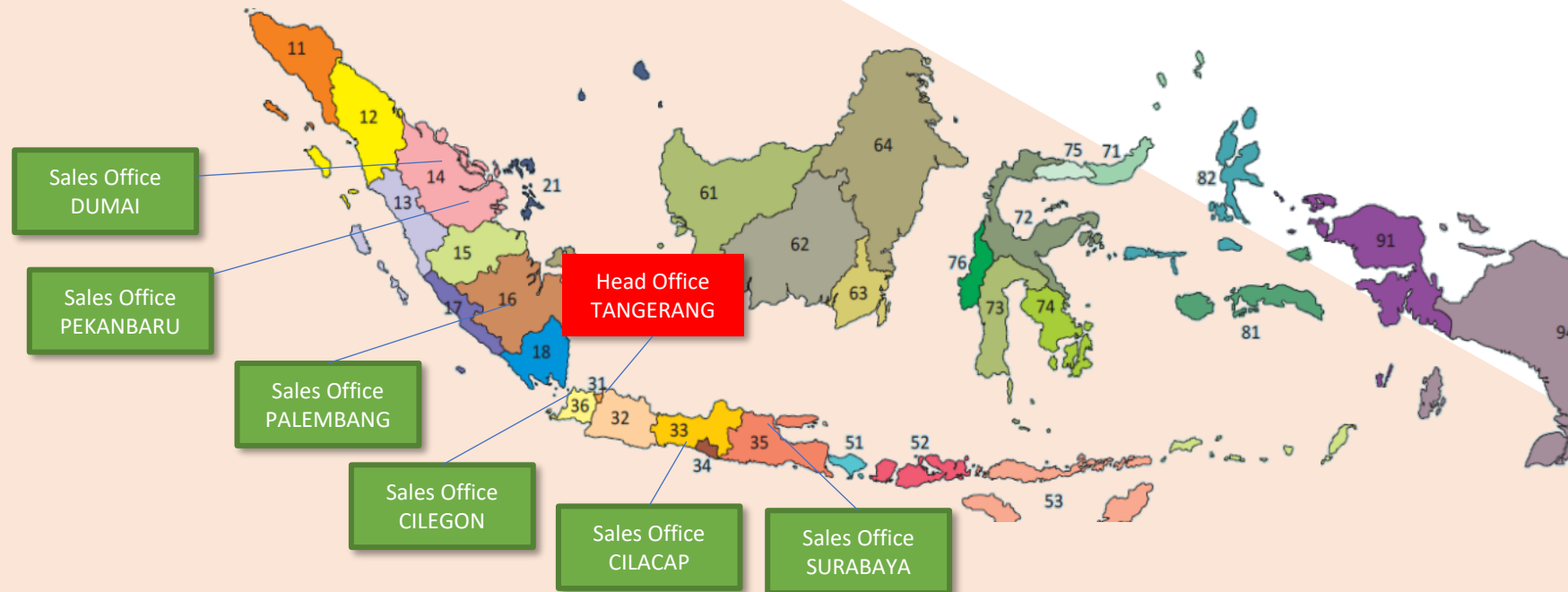
## OUR FACILITIES :

TAS Repair center is located in Tangerang, Banten Province, Indonesia.

Tri Andalan Servindo works alongside Indonesia. The repair center has 30 full time employees and totally 50 sets of manufacturing and repair devices. Besides, FSD Indonesia is the center of Engineering which develops its own product design and engineering under the brand of FSD. The FSD brand is registered in Indonesia.



**PT TRI ANDALAN SERVINDO**





# Products & Service Capabilities



*Bringing Reliable Technology  
and Quality Services*

## PRODUCT SUPPLY

- SPP Pump, Rodelta Pump API 610
- WATSON MARLOW FLUID TECHNOLOGY SOLUTIONS
- Industrial Refrigerant Chiller – Johnson Controls Inc
- Mechanical Seals – FSD, Dry Gas Seal - FSD
- Artificial Lift Products (Sucker Rod Pump) – CDI Oilfield
- ANDRITZ Separation
- Gear Box – David Brown Santasalo UK
- REVALVE - Valve Test Bench, On-Site PSV Tester, Valve Lapping/Grinding Machine

## SERVICES

- Rotating Equipment Repair & Overhaul (Centrifugal Pump, Mixer/Agitator, Gear Box)
- Mechanical Seal Refurbishment
- Dry Gas Seal Refurbishment
- Seal Systems/ Vessel Fabrication





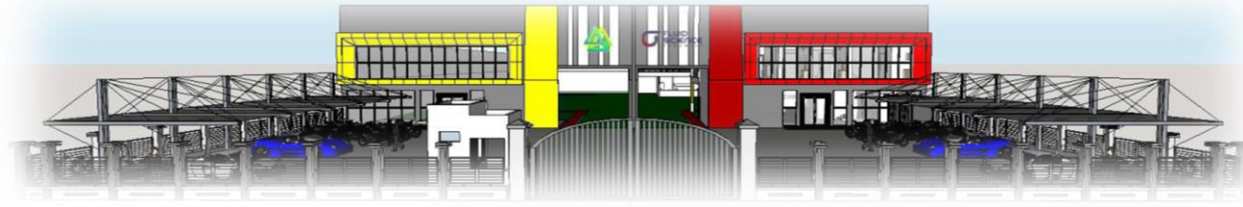
# PT TRI ANDALAN SERVINDO

## OUR PARTNERSHIP





# FACILITIES IN AFFILIATE WITH FSD

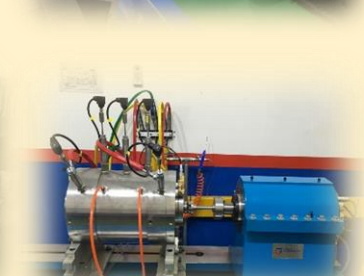


## PRODUCTION EQUIPMENT

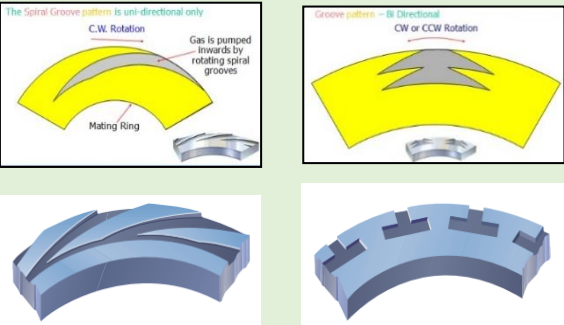
Description	Brand	Year	Qty
Lathe Machine 1200	Standard	2019	1 Unit
Lathe Machine 1500	Ecoca	2010	1 Unit
Lathe Machine 1000	Ecoca	2005	1 Unit
CNC Milling 800 X 600 V100X	Kasuga	2015	1 Unit
Balancing Machine- 500kgs X 1 meter	Schenk	2006	1 Unit
Milling Machine	Standard	2019	1 Unit
Milling Machine	Standard	2010	1 Unit
Milling Machine	Pinacle	2010	1 Unit
Band Saw Machine, Dia 14 inch	Standard	2019	1 Unit
Lapping Machine, Size 24 inch (polish)	Kemet UK	2018	1 Unit
Lapping Machine, Size 24 inch (roughing)	Kemet UK	2018	1 Unit
Lapping Machine, Size 40 inch	GNM	2020	2 Unit
Lapping Machine, Size 40 inch	GNM	2020	2 Unit
Vertical Drill Mill, Size : 32 mm	NA	2000	1 Unit
Vertical Drill Mill, Size : 15 mm	Swan	2019	1 Unit
Heating Oven 1000W	NA	2016	1 Unit
Air Compressor 25HP - Screw Type	Sullair	2018	1 Unit
Air Compressor 2HP - Piston Type	Swan	2017	2 Unit
N2 Bottle Rack 150 Bar	NA	2017	1 Unit
Auto Grooving Machine - Spiral Groove	FSD	2018	1 Unit

## QC – TESTING – ENGINEERING

Description	Brand	Year	Qty
Spin Test 30.000 RPM - 50 kg x 12" Dia.	FSD Std	2018	1 Unit
Dry Gas Seal Dynamics Test Rig - 12"	FSD Std	2018	1 Unit
DGS Automatic Control Systems	FSD Std	2017	1 Unit
Mechanical Seal Cartridge Static Test	FSD Std	2018	3 Unit
Hand Lifting Equipment 1500	FSD Std	2018	1 Unit
Coordinate Measurement Machine 1000	Mitutoyo	2000	1 Unit
Measurement Tool - Complete Set (L)	Mitutoyo	2018	3 Set
Measurement Tool - Complete Set (M)	Mitutoyo	2018	3 Set
Measurement Tool - Complete Set (S)	Mitutoyo	2018	3 Set
Test Cell for Dry Gas Seal - Size 12 inch	FSD Std	2019	1 Unit
Test Cell for Dry Gas Seal - Size 10 inch	FSD Std	2019	1 Unit
Test Cell for Dry Gas Seal - Size < 8 inch	FSD Std	2019	1 Unit
3D Software - Premium License	Solidworks	2018	2 units



The 1st company in Indonesia  
for Dry Gas Seal repair



“All Groove  
Profile”  
“All Brands”

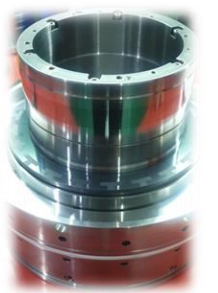
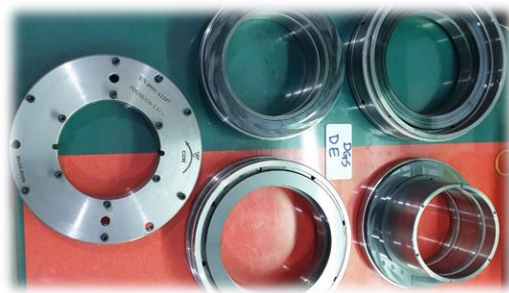
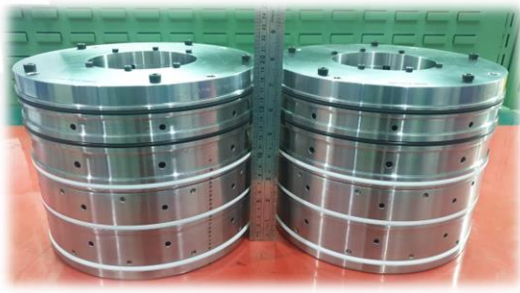


Refurbishment is recommended once every 5 years or so, depending on Plant TA Schedule.

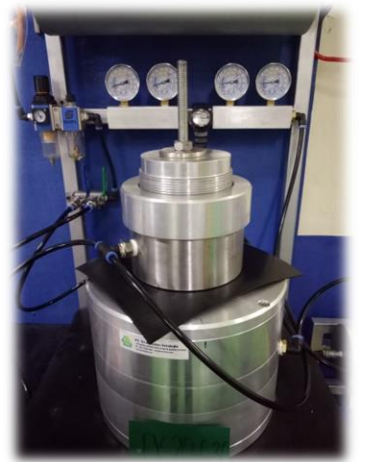
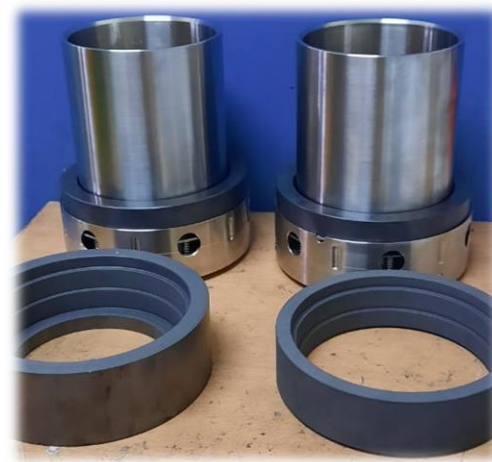
A. Standard Refurbishment  
B. Rework components (Re-lap and Re-grooving)  
C. Replace components








# THE PRODUCTS









**API 682 CARTRIDGE SEAL**

**MATERIALS**

- Rotary face : Antimony Carbon, SiC, TC
- Stationary face : SiC, TC
- Spring : Alloy C-276, SS 316L
- O-ring : EPDM, FKM, Atlas, FFKM

**PRODUCT DETAILED DESCRIPTION**

Type FAP8-1 multiple spring pusher seal API 682 Categories 2 and 3, Type A, Arrangement 1) is specified within API 682 for sealing low temperature flashing hydrocarbons. Type FAP8-1 seal is designed to minimize the pressure distortion and flexing potential of light hydrocarbon fluids to provide long seal life and low fugitive emissions.

Typically, a Plan 11 flush or a Plan 23 is applied depending on the pumping temperature. If the pumping temperature is above 140°F/60°C, a circulating device should be added. Dual unpressurized (FAP8-2) and dual pressurized (FAP8-3) seals may also be considered for these services, especially LFGs.

Type FAP8-1 single seals typically control emissions to less than 500 ppm.

**Design Features:**

- API 682 qualification tested.
- Easy-to-install cartridge design with registered fit.
- Segmented spring-loaded carbon throttle bushing for effective containment.
- Distributed flush optimizes circulation of liquid at faces and prevents trapped vapor.
- Available with pumping ring when utilizing an API Flush Plan 23.
- Dual seals equipped with pumping ring for optimized flow.

**Scopes of Application:**

- Fully meets the needs of the oil and gas industry for hydrocarbon and other services as defined by API 682 for Type A seal duties. This includes: heavy and light hydrocarbons, lubricating liquids, aqueous solutions, chemicals, and some acids.
- Industrial applications involved in the processing of VOCs and similar hazardous products.

**Customization:**

customization of design is possible to suit your operating parameters. Please contact us with your requirements.

**PERFORMANCE**

- Pressure : up to 1000 PSIG
- Temperature : -40°C to 260°C
- Speed : up to 25 m/s
- Size range : 1.000" to 4.500" (25mm to 120mm)

**CARTRIDGE SEAL TYPE FAP8-1**

**TYPE FAP8-1 Single Cartridge**



**www.fsd.co.id**



**API 682 CARTRIDGE SEAL**

**MATERIALS**

- Rotary face : Antimony Carbon, SiC, TC
- Stationary face : SiC, TC
- Spring : Alloy C-276, SS 316L
- O-ring : EPDM, FKM, Atlas, FFKM

**PRODUCT DETAILED DESCRIPTION**

Type FAP8-2 is a dual, unpressurized, engineered O-ring cartridge seal. A standardized cartridge arrangement, certified as compliant to API 682 when supplied with qualified face material pairs and is supplied in two arrangements: wet seal for use with liquid buffer fluids, inner wet seal plus containment seal for use with gaseous buffer fluids.

**Design Features:**

- API 682 qualification tested.
- Easy-to-install cartridge design with registered fit.
- Distributed flush optimizes circulation of liquid at faces and prevents trapped vapor.
- Dual seals equipped with pumping ring for optimized flow.

**Scopes of Application:**

- Fully meets the needs of the oil and gas industry for hydrocarbon and other services as defined by API 682 for Type A seal duties. This includes: heavy and light hydrocarbons, lubricating liquids, aqueous solutions, chemicals, and some acids.
- Industrial applications involved in the processing of VOCs and similar hazardous products.

**Customization:**

changes of materials for getting other operating parameters are possible. Contact us with your requirements.

**PERFORMANCE**

- Pressure : up to 1000 PSIG (gas buffer up to 500 PSIG)
- Temperature : -40 to 260°C (gas buffer 25°C to 205°C)
- Speed : 25 m/s or less (gas buffer up to 20 m/s)
- Size range : 1.000" to 4.500" (25mm to 120mm)

**CARTRIDGE SEAL TYPE FAP8-2**

**TYPE FAP8-2 Unpressurized Cartridge**



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**STANDARD CARTRIDGE SEAL**

**PERFORMANCE**

- Pressure : up to 2.5 MPa
- Temperature : -40°C to 320°C
- Speed : up to 20 m/s
- Size range : 20mm to 125mm (1.0 inch to 5.0 inches)

**MATERIALS**

- Rotary face : SiC, TC
- Stationary face : Carbon, SiC, TC
- Spring : Alloy C-276, SS 316L
- O-ring : Silicon, EPDM, FKM, Atlas, FFKM

**PRODUCT DETAILED DESCRIPTION**

Type FSDSCS is designed to accommodate medium duty applications in various industries, especially difficult and arduous applications found on-site. All seal faces are monolithic construction thereby eliminating distortion in high and low temperature applications. Inboard seal faces are double balanced to ensure excellent sealing at high or low differential pressure, minimize seal face distortion to ensure stable fluid film conditions between seal faces. An alternative design for hot liquid applications, typically for boiler feed and low vapour pressure products, the unique bi-directional pumping ring design coupled with stationary deflector delivers high volumes of barrier fluid to the inboard and outboard seals in constant directions.

**Design Features:**

- Double hydraulically balanced seal faces.
- Reliable face drive mechanism with monolithic seal face materials.
- Unique bi-directional pumping ring coupled with stationary deflector.
- Easy-to-install cartridge design with registered fit.
- Available in standard / medium / big bore gland design.

**Scopes of Application:**

- Industries: Oil & Gas, Petrochemical, Chemical, Power Gen, General Industries.
- Equipment: Process Pump, Mixer, Blower.

**Customization:**

Changes of materials for other operating parameters are possible. Contact us with your requirements.

**TYPE F-DSCS FSD-Dual Standard Cartridge Seal**



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**STANDARD CARTRIDGE SEAL**

**PERFORMANCE**

- Pressure : up to 2.5 MPa
- Temperature : -40°C to 320°C
- Speed : up to 20 m/s
- Size range : 25mm to 125mm (1.0 inch to 5.0 inches)

**MATERIALS**

- Rotary face : SiC, TC
- Stationary face : Carbon, SiC, TC
- Spring : Alloy C-276, SS 316L
- O-ring : Silicon, EPDM, FKM, Atlas, FFKM

**PRODUCT DETAILED DESCRIPTION**

Type F-SSCS is designed to accommodate medium duty applications in various industries, especially difficult and arduous applications found on-site. All seal faces are monolithic construction thereby eliminating distortion in high and low temperature applications. Seal faces are double balanced to ensure excellent sealing at high or low differential pressure, minimize seal face distortion to ensure stable fluid film conditions between seal faces. An alternative design for hot liquid applications, typically for boiler feed and low vapour pressure products, the unique bi-directional pumping ring design coupled with stationary deflector delivers high volumes of barrier fluid to the seals in constant directions.

**Design Features:**

- Hydraulically balanced seal faces.
- Reliable face drive mechanism with monolithic seal face materials.
- Unique bi-directional pumping ring (for boiler feed and low vapour pressure products).
- Easy-to-install cartridge design with registered fit.
- Available in standard / medium / big bore gland design.

**Scopes of Application:**

- Industries: Oil & Gas, Petrochemical, Chemical, Power Gen, General Industries.
- Equipment: Process Pump, Mixer, Blower.


**Customization:**

Changes of materials for other operating parameters are possible. Contact us with your requirements.

**TYPE F-SSCS FSD-Single Standard Cartridge Seal**




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**FLUID SCIENCE DYNAMICS**

**ROTATING EQUIPMENT DIAGNOSTICS SERVICES (REDS)**



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**PT FLUID SCIENCE DYNAMICS INDONESIA**

**TYPE EMB SERIES 160 Bar**



**Dry Gas Seal Pressure Boosters**

**GCS DATA SYSTEMS**

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**PT. FLUID SCIENCE DYNAMICS INDONESIA**

**MECHANICAL SEAL SERVICE CENTER**



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**PT. FLUID SCIENCE DYNAMICS INDONESIA**

**DRY GAS SEAL SERVICE CENTER**



**The 1<sup>st</sup> Dry Gas Seal Facility in Indonesia**

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## HEAD QUARTER :

Kawasan Industri Blessindo Blok A2  
Jl. Raya H. Tabri, Kel. Cirarab, Kec. Legok,  
Kab. Tangerang, Banten 15820  
INDONESIA

Total Size : 3000 M2

Building Size : 1200 M2 (X2)







# Workshop Facilities







# Workshop Facilities





# Workshop Facilities

## Lapping Machine

4 Units 40" Size

2 Units 24" Size

La







## Workshop Facilities – DGS Test Rig







# Customers



PT DELTA DJAKARTA Tbk



PERTAMINA

ExxonMobil



INDOPELITA  
Member of PT Pertamina (Persero)



Mubadala  
Petroleum



MULTI BINTANG



PT. INDOLAKTO



