Roc-Master®

Manufacturer & Supply Company

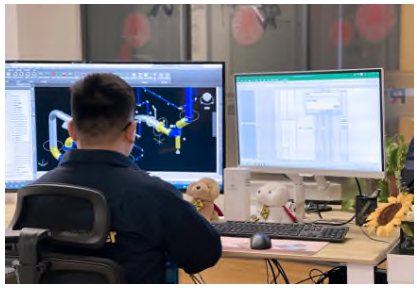
ROCLAD ROCOTE ROCFAB ROCLOK ROCSUBSEA

Total Piping Solutions

Roc-Master is a leading global supplier of CRA weld overlay clad pipelines, prefabricated pipe spools, subsea pipeline connectors, high pressure pipe fittings, and all types of corrosion-resistant coated fasteners. Meanwhile, we also provide machining, cladding services for valves parts, pressure vessel components and offer turn key solutions for all piping products.

Roc-Master group has four production facilities located in Kunshan, Ji'an, Xuancheng and Jiangyin city with total surface area exceeding 110,000 m^2. The group owns an international team of talents in commercial, technical, production, & quality management, some holding master degree, senior professional titles and other qualifications. Our products and services are widely used in Petrochemical & Refinery, Offshore Platform, FPSO, Long-distance pipeline, Seawater desalination, Nuclear, Power, Hydrogen energy, etc. We have domestic sales offices in China major cities, overseas sales office in Abu Dhabi, Qatar and agents in Italy, Singapore, Malaysia, Thailand, Korea, Oman, Kuwait, Abu Dhabi, Qatar, Brazil, etc. Roc-Master is qualified vendor for CNOOC, CNPC, SINOPEC and is in long-term strategic partnership with global top companies as Shell, BP, Petrobras, ADNOC, Woodside, MODEC, SBM, HHI, Saipem, TechnipFMC, Technip Energies, Fluor, Hanwha Ocean, CIMC, Cosco-shipyard, etc.

Roc-Master was founded in 2001. We can provide design service for prefabricated process pipeline with EP3D design software, which not only ensures the design accuracy but also improves efficiency for welding and quality control. By adopting SolidWorks, ANSYS F.E.A, and Autodesk Inventor Professional software, the company are capable to offer design, verification, calculation for non-standard piping products with compliance to standards and codes as ASME VIII, ASME B31.3, ASME B31.8 and DNV-ST-F101. We have already gathered engineering experience for products like NORSOK 10000psi flange, RocLok clamp hub connector, RocSubsea misalignment ball flange, swivel ring flange, anchor flange, forged barred tee, piggable WYE tee, pig retainer and other non-standard products. Our design and calculation capability has been well acknowledged by customers through years of successful and safe using experience with actual products.



Roc-Master Kushan was established in June 2013, located in Jiangsu Province. It is the headquarters of the organizations with centralized administration functions in management, sales, supply chain, technical, R&D, quality, etc. We have experienced API 6A, API 6D engineers that enable the customized design and manufacturing of drilling equipment, pipeline valves, special HT globe valve, flow control valve, ball valve for unconventional applications, butterfly valve, components assembly, etc. RocClad is specialized in RocClad weld overlay, RocFab prefabrication of CRA piping, RocLok clamp hub connector, API 6A, API 6D valves. The facility has 2 workshops, independent laboratories, measuring rooms and NDT areas with total surface area of 18,000m^2.

The RocClad weld overlay and RocFab prefabrication workshops own more than 100 sets of automatic pipe cladding machines, horizontal/vertical automatic cladding machines for valves, components and are equipped with 10 sets of automatic SAW machines, 1 set of full automatic narrow gap butt welding machine, 9-point temperature measurement heat treatment furnaces, 4 sets of Q+T furnace, 18 sets of PWHT equipment, and more than 20 sets of automatic UT, manual UT, PMI, thickness measurement, fluorescent magnetic particle ,etc. We are capable to clad pipes up to 12.2m with minimum ID of 110mm and 30mm for clad flanges, fittings, branches, valve bodies. The largest dimension of single prefabricated spool is up to 4 * 2 * 12 (m) with maximum weight of 30 tons. The annual cladding capacity is 1,000 tons of welding wires. We have regular safe stock of 60 tons of Inconel® 625 and 30 tons of other commonly used welding consumables. There are more than 480 WPS/PQRs available for both weld overlay and butt welding, certified by Third Party and Classification Society and more than 60 alloy welders qualified by AWS, LR, DNV and ABS who are able to carry out prefabrication and filet welding for CRA piping, DS, SDSS, nickel alloy piping, etc. We are also capable to provide some field welding, prefabrication, field installation services for topside modules to ensure the successful integration of piping system and provide welder training and examination services for EPC, construction yard and module fabricators.

The machining workshop has CNC horizontal machining center, CNC four-axis vertical machining center (machine up to ID 1.2M), CNC boring and milling machines, CNC drilling machines and other equipment.

Roc-Master Jiangyin was established in May 2023, located in Jiangyin city with 6,000m^2 workshop. The facility owns 24 sets cladding machines, 50 sets of bending, heat treatment, machining and inspection equipment. Roc-Master Jiangyin is specialized in manufacturing and inspection of CRA weld overlay clad fittings, flanges and bends with pipe material of CRA, Hastelloy, DSS, SDSS, Chromium Steel, CS, CMSCS, CMS, High Yield, etc. Hot induction bending workshop owns 4 sets of horizontal automatic parameter monitoring bending machines with immediate frequency heating, which can produce ID of 2”-48”and thickness of STD-100mm.The bending equipment is equipped with online temperature monitoring of inner and external arc, bending speed and thrust monitoring, cooling water temperature, water pressure monitoring and display of frequency heating power, current and voltage. Parameters and curves records can be output and included in final documentation. There are more than 60 staff from technical, quality and production in Jiangyin facility. The annual capacity is 130 tons of welding wires and 3,000 tons of flanges & fittings, 8,000 tons of bends.






Roc-Master Xuancheng is located in high-tech industrial development zone in Anhui province. The facility has 2 blocks of 10,000m^2 workshops, 2,000m^2 offices and laboratory, as well as a 4,000m^2 building. Block B is specialized in manufacturing of CRA weld overlay clad piping and piping prefabrication, Block A is focused on production, inspection of RocCote Xylan® coated bolts, welded studs, pipe shoes, U bolts, pipe clamps, sliding pipe supports, etc. Xuancheng facility has a team of experienced engineers in material, NDT, coating, welding, quality with production, technical, management total 100 employees. The company conducts standardized management in accordance with ISO 9001 and holds quality certificates as ISO 14001, ISO 18000, product certificates as NORSOK M650, GOST R, FPC(EN14399).

Xuancheng corrosion-resistant fastener workshop digitalized the entire work flow by adopting ERP visual management. The automated production lines include robot spraying Xylan® coatings, disc cutting production line, automatic chamfering, marking, thread rolling and other machining production lines, automatic hydraulic hot forging production line for hex bolts and nuts, U bolts, high-temperature solution production line, tempering heat treatment production line, sherardizing production line and automatic product packaging line, etc. Inspection equipment includes Rockwell hardness tester, King 3000 Brinell hardness tester, coating thickness gauge, salt spray testing machine, NDT testing, raw material chemical composition, mechanical property, impact test, corrosion resistance testing. All tests can be completed in-house.

Roc-Master can perform Whitford® Xylan®, PTFE, FBE, ceramic, sherardizing coating with annual capacity of Xylan® coating over 5,000 tons and 3,000 tons for incoming material coating. We keep over 600 tons regular stock of corrosion-resistance, high temperature resistance materials type as B7, L7, B7M, L7M, S31803, S32750, S32760, 625, 718, A453 GR.660, Inconel 625, 300 tons stock of nuts in full size range, 10 tons of stock for Whitford® commonly used coating series such as Xylar1, Xylan 1014, 1070, 1424, etc.

Xuancheng facility is Whitford® QAC facility. The base coat of the fasteners can be zinc-plating, zinc phosphating, manganese phosphating, zinc-nickel plating, Xylar®2, sherardizing, etc. and the top coat is applied with Whitford®1000, 1400 series. The salt spray test can withstand over 2000 hours for products with zinc-plating+Xylan®1424 coated, 5000 hours for zinc-nickel plating, 5000 hours for Zn-Ni+Xylan® coated and 5000 hours for RocCote® sherardizing coated.

The RocFab workshop is equipped with production lines of CRA weld overlay piping and CRA pipe spooling. There are sand blasting, painting and drying production lines for prefabricated spools that can meet environment protection requirement, and stainless steel, duplex steel pickling production line as well as 4.7x7.7m RT room. The production equipment includes automatic beveling machine, automatic production equipment for CRA piping, automatic butt-welding machines, PWHT equipment, laser continuous printer, etc. In-house inspection can be performed for PMI, UT, PT, MT, etc. and annual capacity of CRA weld overly piping and piping spooling reaches 20,000 tons.

Roc-Master Ji'an was established in April 2002, located in Jiangxi province with total surface area of 38,000m² (28,000m² of workshop). The facility is specialized in manufacturing of all kinds forging products that are used in Oil & Gas and Petrochemical equipment components, valves parts, pipelines, machinery, marine, aviation, nuclear industries, etc.

Through years of development, Ji'an facility is now becoming a professional manufacturer who can design, produce and sale forging and flange products. The material type includes sulfur-resistant low carbon steel, special alloy steel, SS, SDSS, super austenitic alloy steel, nickel alloy, copper nickel alloy and HT alloy, titanium alloy, 7075/5083 aluminum alloy in aviation industry. The facility owns fast forging units with 3150 tons capacity, 2500-ton electric Screw Press with maximum open-die capacity of 20 tons, close-die capacity of 120kg, a 3m x 6m gantry machining center, 3m x 6m CNC boring machine, 2.5m vertical lathe, CNC 4-axis vertical machine center, CNC boring and milling machine, CNC drilling machine and other equipment. Heat treatment furnace is inspected and settled according to API 6A 9-point furnace temperature requirement. The entire process of quenching into water is limited within 50 seconds. The annual capacity for special forgings reaches 500 tons, and 15,000 tons for CS, SS, High Yield forgings. We have safe stock of CS materials over 3,000 tons; SS, DSS, nickel alloy, copper nickel alloy 500 tons; standard CS, SS flange parts, semi-finished forgings over 400 tons which enables fast delivery for urgent projects.

Jiangxi Special Pipeline Engineering Technology Center was founded in 2012, dedicating in R&D, promotion of new material, new product and innovated technology. The engineering center owns 40 sets of testing devices in mechanical testing laboratory, metallographic laboratory, heat treatment room, spectrum room and three-coordinate measurement room.







Roc-Master group settled Kunshan testing center, Ji'an facility laboratory, Xuancheng facility laboratory, where can perform chemical composition test, mechanical test, impact test, metallurgical test, corrosion resistant test, PMI, etc.

Testing equipment includes MTS 300kN electric universal tensile tester, -196°C impact tester, Brucker Q4-C170 all element spectrum analyzer, metallurgical analyzer, Rockwell hardness tester, Vickers micro hardness tester, desktop digital display Brinell hardness tester, IGC testing system, pitting corrosion testing system.

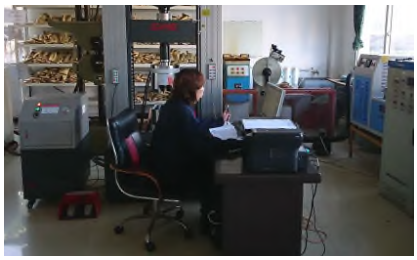
On site testing equipment includes King 3000 portable Brinell hardness tester, ferrite measuring instrument, a full set of API thread groove gauges, dedicated three-coordinate measurement arm, roughness tester, phased array ultrasonic flaw detector, portable ultrasonic fault detector, 26-channel mobile online PMI device, AUT, UT, PAUT, MT, endoscope, as well as electromagnetic and ultrasonic thickness gauge.

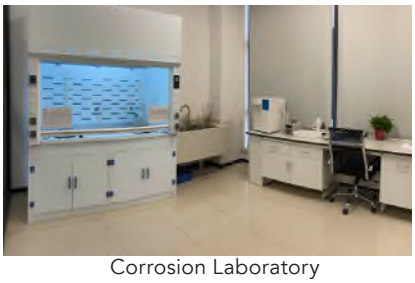
Kunshan facility is equipped with American GAGEMAKER precision length instruments and supporting ball gauges, thread gauges, depth sounder, digital calipers, micrometers and other dimension tooling; Kunshan and Ji'an laboratories are both equipped with in-house measurement calibrators who can conduct unified calibration management for all measuring tools, standard test blocks and instruments. By standardizing system of tool-collection, verification, calibration, the measuring tooling instruments can be effectively and legally managed.

Kunshan facility is capable to complete hydrostatic test up to 20000psi pressure and has independent assembly and test area of more than 200m^2; a pressure test room, high pressure test system, isolated test pump, three-station test machine, ball valve assembly press, lifting and fixed assembly workbench to meet assembly and test requirements of different product series.

All Roc-Master facilities have a complete quality assurance system and quality tracking, quality control process to ensure the product quality.


Kunshan Lab


Ji'an Lab


Corrosion Laboratory

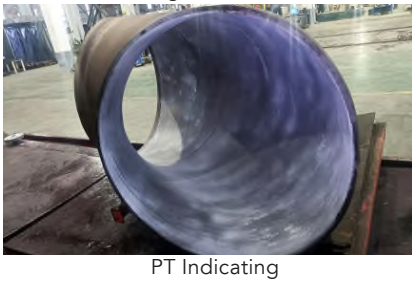

Impact Notch Check


Rockwell Hardness Test

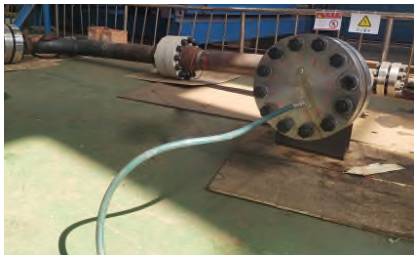

Faro Gage Portable CMM


Weld Joint PMI


CRA CLAD PMI


PT Indicating

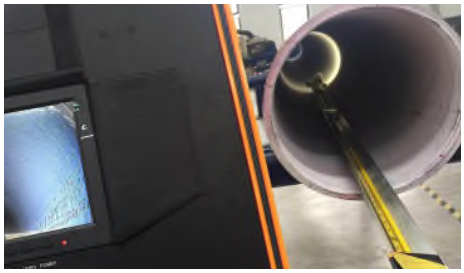

Weld Joint UT

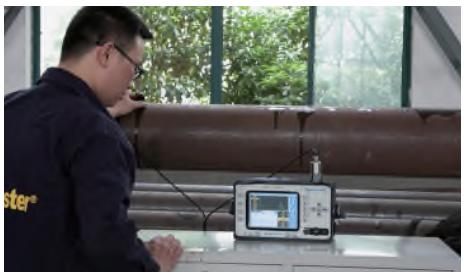

Hydrotest


Weld Joint RT

Roc-Master Quality Assurance

Our experienced and qualified technicians utilize NDT techniques to ensure high quality and reliability of our products during the production process. Final documentation package for clients will be issued after inspection, including all inspection process records, MPS, procedures, MTC, NDT reports, etc.





- Positive Material Identification – PMI

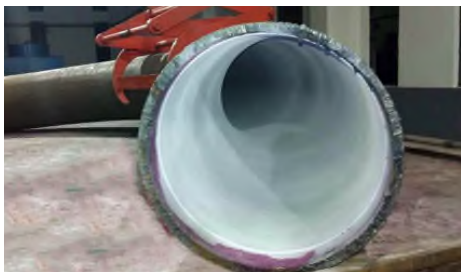
  We utilize the world's best 26-channel portable online PMI device to recheck chemical composition of the base material and cladding layer. The test reports will be completely saved in the computer on PMI device and can be traced. Shanghai Research Institute of Materials and the imported calibration specimens ensure the PMI accuracy.

- Ultrasonic Testing – UT

  We utilize the world's advanced Phased Array Ultrasonic Flaw Detector to do the ultrasonic testing on the integrity of the weld overlay layer and the base material to guarantee the cladding quality. Roc-Master strictly complies with the customer's measuring standards of cladding thickness.

- Penetration Testing – PT

  All components are subjected to penetrate testing prior to overlay deposition as well as on completed items. Remote video-probe inspection technology is utilized on inspecting internal bore surface of pipe. We are able to examine inside surface of the pipes up to 6.5Mtr.



- Magnetic Particle Testing – MT

  We utilize fluorescence or visual techniques to test the surface defect on ferromagnetism components after all production phases are completed.

- Visual Test – VT

  Using remote video camera techniques and through the outlay screen, we can examine the cladding appearance and record the VT process media. VT process media will be submitted to the customers as part of the quality assurance documentations.

- Clad Layer Thickness Check

  Innovative equipments will be used for the CRA clad layer thickness check, such as the Inconel 625 layer welded on the carbon steel and low alloy steel. The clad layer of the products will be checked continuously to meet the customer's requirements.

- Radiographic inspection – RT

  RT is outsourced and carried out by Third Party professional RT testing companies on request.

- Hydrostatic Test

  Hydrostatic test for clad pipes is done by the pipe mill who uses special inspection equipments carrying out fast and accurate testing with pressure up to 92 Mpa.
  Hydrostatic test for clad bends is done in-house after butt-welding by Roc-Master's qualified welders with pressure up to 20000psi.

Roc-Master QA System

According to inspection requirement, Roc-Master can provide Classification Society and Third Party Inspection such as ABS, BV, DNV, LR, TUV, SGS, etc. We can issue EN10204 3.1 certificate and EN10204 3.2 certificate will be issued by Classification Society and Third Party. In addition, we also provide corrosion test reports such as HIC, SSC, SCC, A262 E, G48, G28, and other Third Party certified reports such as CTOD test, hydrostatic testing, leakage testing, pressure and temperature cycling testing.

ISO 9001 Shanghai	Since 2002	TS Kunshan & Ji'an	Since 2005
ISO 9001 Ji'an	Since 2007	NORSOK M650 Flange	Since 2019
ISO 9001 Kunshan	Since 2013	NORSOK M650 Fastener	Since 2020
ISO 9001 Xuancheng	Since 2023	NORSOK M650 Fitting-Bend	Since 2021
ISO 9001 Jiangyin	Since 2023	ABS Ji'an	Since 2012
API 6A Kunshan	Since 2011	API 6D Kunshan	Since 2023
PED AD2000 W0 W9 W10	Since 2009	API 5LD Kunshan	Since 2012
Achilles	Since 2013	CRN Alberta, Ontario	Since 2012
ISO 3834-2 Kunshan	Since 2016	BV Kunshan & Ji'an	Since 2016
ABS Design Assessment	Since 2015	DNV TAP Kunshan	Since 2022
ISO 45001 Kunshan & Ji'an Xuancheng & Jiangyin	Since 2013	ISO 14001 Kunshan & Ji'an Xuancheng & Jiangyin	Since 2015

HSE

We value and care about our employees by taking safety monitoring responsibilities. Continuous efforts are made to ensure the safety, mental and physical health for all Roc-Master members.

HSE Policy

Safe working condition
Environment friendly
Sustainable development

HSE Objective

No accidents, pollution or occupation diseases
Comfortable and safe working environment
Continuous improvement.

The Roc-Master Advantages

Professional Teams

Customer orientated sales and management teams, professional engineering teams, professional QA&QC teams with rigorous working attitude, highly skilled manufacturing teams and professional logistics team.

Professional Project Management

We are familiar with most of the materials for piping products which are used in the Oil and Gas industries, Chemical and Petrochemical services, such as pipes, pipe fittings, valves, flanges, bolt & nuts, gaskets, etc.
Roc-Master designates a specialized project manager for each project to ensure a 24-hour communication, better understanding, mutual trustable relationship between Roc-Master and customers in process and after sales.
Roc-Master provides complete documentations for quality traceability and offers regular after-sales services for each project.

Innovation

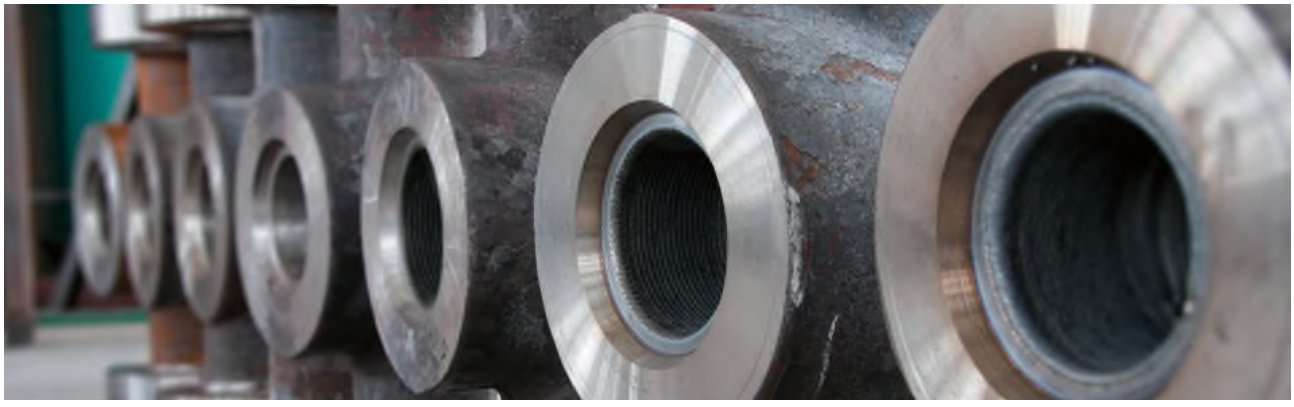
RocClad anti-corrosion weld overlay technology, RocClad anti-corrosion clad bend technology, RocFab spooling, piping & skid prefabrication technology, RocSUBSEA subsea pipeline products technology, NORSOK Compact flanges technology, RocCote anti-corrosion coating technology. RocLok Clamp Hub Connector sealing technology, FPSO Riser technology for oil deliver under high pressure conditions.

We keep on learning, studying, improving and advancing!

Applications

People oriented, market-driven oriented, Roc-Master is committed to establishing reliable reputation by providing customers with high quality and innovative products, thoughtful and efficient services.

We treat Quality, Customer, Market and Continuous Improvement as our goal!



Products and Services

Shop Fabrication for Clad Piping Products

- WPS / PQR comply with ASME Spec. IX, DNV-ST-F101, API RP1104 Standards.
- We have available qualified Butt Weld WPS/ PQR covering C.S, Low Alloy High Strength Steels, Austenitic Stainless Steels, Duplex and Super Duplex, Bimetals and Copper-Nickel Alloy.

Clad Pipes

- In accordance with API 5LD
- IDØ110~1200 mm
- Length up to 12.2 m
- Weld overlay special pipe end preparation (more layers and controlled OD and Wall thickness)
- Pipe end calibration and CNC Boring & Milling machine bevel processing
- Hydrostatic Test after cladding in accordance with API 5LD requirements
- Pickling and passivation on internal surface, steam cleaning of surface
- 3LPP anti-corrosion protection on pipes outside surface
- PT with internal video recording

Clad Bends

- In accordance with API 5LD, ANSI B16.49, ISO15590-1
- Size range 2" to 24" with radius ≥ 3D
- Performance test per dimension, per material, per furnace and per radius
- Dimensional inspection
- PT with internal video recording
- Pigging test
- Hydro Test

Clad Flanges

- A full range of flanges as per API 6A, ASME B16.5
- Forged parts rough machined before cladding, with 100% PT after cladding, hardness test for the cladding layer and clad products final machining after cladding

Cladding Services

- RocClad cladding service for flanges, valve bodies, pipe fittings, pipes
- UT before cladding, dimension check, 100% postweld heat treatment, and clad products final machining after cladding

Special Subsea Forged Parts

- API / ANSI converted to non-standard flanges
- DSA Adapter Flanges
- Non-standard flanges
- Forged Y Tees, WYE Tees, Sand Tees, Forged Subsea Barred Tees, Forged 90° Elbows
- Subsea valve bodies forging parts
- Forged Pipes
- Subsea Metal flexible tube connector
- Misalignment Ball Flange

Subsea Flanges, Pipeline Flanges, Process Flanges

- Flanges in accordance with ASME
- Flanges in accordance with API 6A
- Compact Flanges in accordance with NORSOK L-005
- Swivel Ring Flanges, Anchor Flanges, Hanger Flanges
- RocLok Clamp Hub Connectors

Fasteners with Anti-corrosion Coatings

- Stud Bolts and Heavy Nuts, U-Bolts and Nuts, Clamps, PTFE Bonded Clamps, Insulated Clamps, Pipe Support
- RocCote base coating including Zinc plating, Zinc Phosphate, Manganese Phosphate, Zn-Ni plating, Xylar® 2, Sheradizing, etc.
- RocCote surface coating including Whitford Xylan®1424, 1014, 1070, 1052,4090, etc.

Valves

- API 6A, Sluice valves, Ball valves and Plug Valves
- API 6D, Sluice valves, Ball valves
- Special valve, High temperature globe valve, Flow control valve, Ball valve for unconventional applications, Butterfly valve, etc.
- Component assembly

One-Stop Package Supply

One-stop package supply for clad and non-clad pipes, fittings, valves, flanges, bolts and gaskets, corrosion detection products.

RocClad Technology

RocClad is a well-known specialist for CRA cladding and a manufacturer of forgings and clad-products. We provide customers with corrosion resistance solutions. Our core technology is professional welding techniques at an international advanced level.

RocClad technology has been maturely used for severe corrosion, abrasion and cavitations

erosion applications. RocClad cladding techniques build up a CRA layer on the wet parts of pipes and other piping components to protect the piping system integrity, providing low cost and long-life solutions.

RocClad Process

RocClad is a metallurgical bonding technology of two kinds of different metals. It is the 100%

metal fusion technique.

RocClad makes overlay welding on most carbon, low alloy, chrome moly, stainless steel and other steels with variety of corrosion resistant alloy including Inconel®, Incoloy®, Monel®, Hastelloy®, stainless steel and hard facing materials. Benefiting from our advanced DSP or PLC controlled welding stations and optimized producing process, we offer very low dilution of alloy deposit. Real time video monitoring and recording system ensure perfect tie in and weldpath. Iron (Fe) content of the Inconel 625 cladding layer can reach less than 5% in the surface 1 mm below the top surface.

The CRA layer will be achieved by weld overlay so that our customers will obtain better anticorrosion and wear resisting property at a lower cost, thereby extend the service life of piping system.

RocClad has been widely applied on hot induction clad bends for the long-distance transport pipeline, risers for the offshore platform, piping products for the submarine special equipment, stations, X-tree well head, DD EE FF HH grade Christmas tress parts, well-head valves, Hydrogenation reactors and so on, while mechanical lining method has hardly used in such working conditions.

RocClad Production Capacity

RocClad owns over 108 sets of DSP or PLC controlled welding machines, which include 34 sets of automatic pipe cladding machines and 74 sets of horizontal/vertical automatic cladding-machines. The annual consumption amount of the welding wire reaches 1,000 tons.

RocClad stocks 30 tons of Inconel® 625 welding wire, 10 tons of Incoloy® 825 welding wire, and 15 tons of other commonly used welding wire.

RocClad has a special Bonded Warehouse for the imported Incoloy® 825 and Inconel® 625 welding wire to strengthen the competitiveness in the overseas projects.

RocClad Applications

- Manifold, Pipeline, Bends, Bulkhead, Flanges, Valves & Blocks for Submarine Christmas Trees
- Risers, Bends, Elbows for Offshore Platforms
- Bends, Pipe Fittings, Flanges, Insulation Couplings for Onshore Gathering, Stations, Treatment Plant, Desulfurization and Decarbonization Device X-mas Trees
- Bends, Pipe Fittings, Flanges, Valves for Gas Processing Plant and Offloading Stations
- Branch Pipes, Parts, Flanges, Weldolet for Pressure Vessel
- Pipes, Pipe Fittings, Flanges, Valves for anti-corrosion and anti-abrasive applications for Coal Oil industry

Clad Pipes, Hot Induction Clad Bends

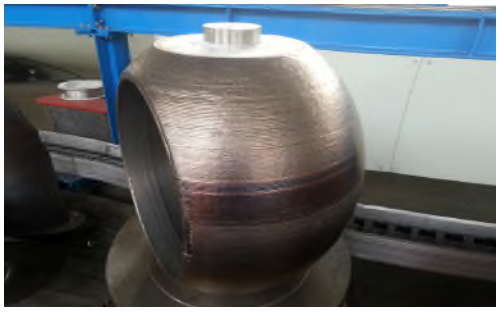
- Base Material of Pipes:
  ASTM A53 Gr.B, A106 Gr.B, API 5L Gr.B, X42, X52, X60, X65, X70; ASTM A333 GR.6, Stainless Steel
- Thickness of base pipes: 6mm~75mm
- OD of Pipes: DN125~DN600 (130mm~600mm)
- Length of Pipes: Up to 12.2m
- Process of Bending: Hot Induction Bending and Cold Bending
- Bend Radius: 3D~10D or on customer's request
- Bend Angles:
  For Cold Bending 1°~180° / For Hot Induction 1°~100°
- Diameter of Clad Bends: 4"~24"
- Wall Thickness of Clad Bends: STD~75mm

Clad Valves, Flanges, Forgings and Fittings

- Bore: 30mm~1800mm
- Base Material of Valves: ASTM A216 WCB, WCC; A352 LCC.....
- Base Materials for Flange and Forgings:
  ASTM A105/A105N, ASTM A350 LF2 CL2, LF6 CL2
  ASTM A694 F42, F52, F60, F65, F70
  ASTM A182 F304/304L, F316/316L
  API 45K, 60K, 75K
  AISI 4130 (M), 4140, 4340, 8630(M)
- Base Materials for Pipe Fittings:
  ASTM A234 Grade WPB, WPC, WP11, WP22
  ASTM A860 WPHY52, WPHY60, WPHY65, WPHY70
  ASTM A420 WPL6
  ASTM A516 GR. 60/GR. 70
- Others

Materials for Weld Overlay

- Stainless Steel 304 /304L 316/316L, 317L, 347, 904L, 410
- Inconel® 600 /625 Incoloy® 800 /825
- Duplex Steel S31803, 2205, S32760, 2507, 2209
- Hastelloy® C276, C22
- Monel K-500, 400
- Cu/Ni 70/30
- Other Special Alloy Steel



RocFab Clad Pipe Prefabrication

RocFab owns WPS/PQRs for weld overlay, covering nickel alloy, stainless, hard surfacing, and WPS/PQRS for butt-welding, covering carbon steel, duplex/super duplex steel, stainless steel, alloy steel and weld overlay composite materials. All are witnessed and certified by customers, 3rd party agencies and Classification Societies such as ABS、DNV、LR、BV、TUV、Moody, etc. We have AWS / LR/ DNV / ABS approved automatic welding machine operators and more than 40 skilled and experienced welders for GTAW, SMAW, FCAW processes up to 6G skill level.

Weld Overlay WPS/PQR:

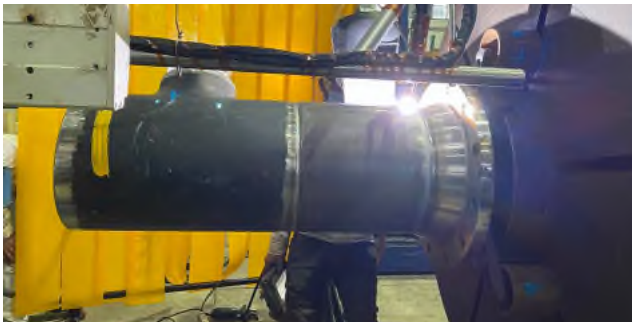
Base Material	CAR Material
API 5L X70	N06625
API 5L X65	
A333 Gr.6	
A333 Gr.6	
A694 F65	
AISI 4130	
8630 75K	
A350 LF3	
A182 F53	
API 5L X70	N08825
A420 WPL6	
A350 LF2	MSG 6-GZ-60 (M650)

Base Material	CAR Material
AISI 4130	STL-6
A182 F11	
API 5L X65	STL-21
A312 TP316	CuNi 70/30
API 5L X65	
API 5L X65	N10276
API 5L X65	SS904L
API 5L X65	SS316L
A182 F9	
API 5L X80	DSS31803
A216 WCB	SS410
A350 LF2	DSS32750 DSS32760

Butt Welding WPS/PQR:

A694 F65	A694 F65
AISI 4130 75K	AISI 4130 75K
15CrMo	15CrMo
A182 F22	A182 F22
A182 F91	A182 F91
A522 Type I	A522 Type I
A182 F316L	A182 F316L
A182 F904L	A182 F904L
A182 F51	A182 F51
A182 F55	A182 F55

B151 C70600	B151 C70600
AISI 4130 75K	API 5L X65
AISI 410 75K	AISI 410 75K
X65+N06625	X65+N06625
X70+N06625	X70+N06625
A36+N10276	A36+N10276
B564 UNS N06625	B564 UNS N06625
B575 UNS N10276	B575 UNS N10276



RocLok Clamp Hub Connector

Design Standard:

ASME B31.3, ASME VIII Div 1, Div 2 or Div3, API 6A, DNVGL-RP-D101,DNVGL-CP-0185 NACE MR0175/ ISO 15156

Material:

Hub material:

- A105, A350 LF2, LF3, LF6, A522 Type 1 or with Inconel 625 weld overlay
- A694 F42/F52/F60/F65/F70/F80 or with Inconel 625 weld overlay
- A707 L3 Cl.2/Cl.3, A707 L5 Cl.3, A859 CL.2
- AISI 4130/4140
- A812 F1/F5/F5a/F6a/F9/F11/F22/F22V/F91/FXM-19
- A182 F304/F316/F904L/F321/F347/F44/F49/F51/F53/F55/F60
- Nickel alloy

Clamp material (including bolting):

- AISI 4130/4140-B7/2H, L7/7, L7M/7M
- A182 F304/F316/F321/F347-B8/8

Seal ring material:

- AISI 4130/4140
- A182 F304/F316/F51/F53/F55/F60
- ASTM B637 UNS N07718
- A564 GR.630

Dimension and Rating:

0.5"~26" CL150~CL2500
0.5"~26" API 2000psi~10000psi
0.5"~18" API 2000psi~15000psi

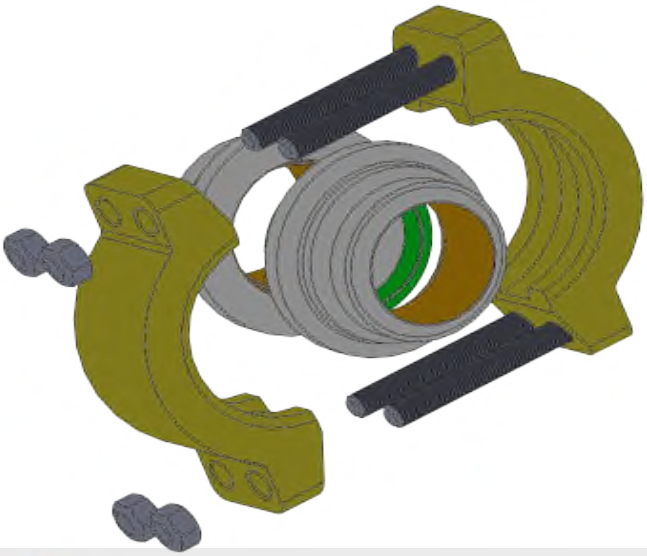
Coating:

F.B.E, HDG, Xylan
upon customer requirement

RocLok Clamp Hub Connector has the features of light weight, small volume,less bolting assembling quantities, easy installation, and big load withstanding. Pressure actuated seals ensures joint integrity even under extreme pressure.High-strength sealing material can promote the reuse of seal rings.

Light self-sealing technology is Roc-Master's core technology.

Compared to other brands, RocLok Clamp Hub Connector has more reliable design and easier to use.



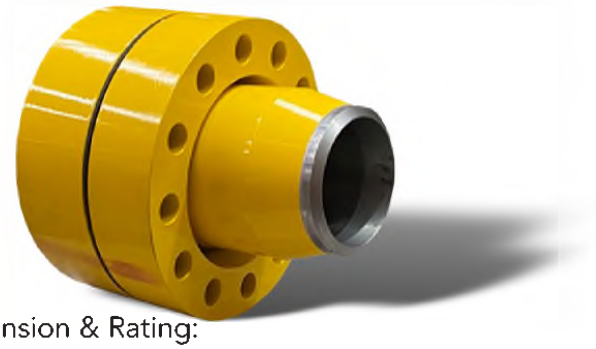
Flange Misallignment Connector

Design Standard:
ASME B16.5, ASME VIII Div 1, Div 2 or Div3, API 6A, API 17D, API 6H

Material:
- A105, A350 LF2 or with Inconel 625 weld overlay
- A694 F52/F65/F70/F80 or with Inconel 625 weld overlay
- AISI 4130
- A182 F304/F316/F321/F51/F53/F55
- Nickel alloy

Fastener:
A193 B7/B7M/L7/L7M
A194 2H/2HM/4 /4M and others

Seal Ring:
AISI C1008 A182 F316 and others



Dimension & Rating:
4" ~ 12" CL300~CL2500
14" ~ 24" CL300~CL1500

Coating:
F.B.E, HBE, ect. as required

Flange Misalignment Connector is used for connection of subsea pipeline when the pipeline system is deflected. The internal ball component allows up to 10° angular adjustment along the pipe axis for easier alignment to flange face. 360° rotation of bolt holes can ensure the easy assembling and installation of flanges.

Swivel Ring Flanges

Design Standard

ASME B16.5, API 6A, MSS SP-44, NORSOK L-005, ASME VIII Div. 2.0, DNV-ST-F101, ISO 15590-2, ASME B31.3, ASME B31.8

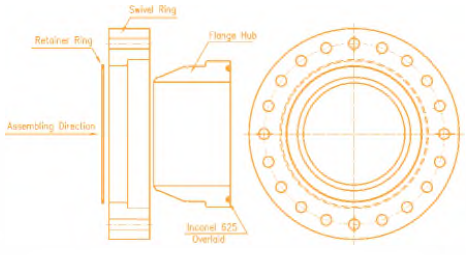
The outer ring of the swivel flange rotates 360° centered on the inner ring to ensure the quick alignment to bolt holes with its standard mating flanges. This feature is critical for subsea pipeline operations, it allows divers to align the bolt holes more efficiently and easily.

Swivel ring flange can be designed for any dimension or pressure rating, so as to be implemented for any recognized flange dimension and gaskets, such as ASME B16.5, API 6A or MSS SP-44. In addition, it can also be designed as non-standard swivel ring flange upon customer's requirement for special applications. For example, weld overlay to inner ring or FBE external coating for flange surface, etc.

Pig Retainer

Pig retainer is mainly used for deep-sea pipeline cleaning. Rotate the handle by the manipulator of the underwater ROV robot, so the pin of the pig retainer can extend into the pipeline to block the pigging ball and prevent it from moving back and forth in the pipeline.

Two grooves are designed (red coating) up and down the flange body of the pig retainer. When the working mode is on, the indicator ring will move back and forth with the rotation of the handles. The position of the grooves indicates on the working mode of pig retainer respectively for "on" and "off" for easy operation of ROV.



Compact Flanges

RCF NORSOK NCF5 Series

Based on NORSOK L-005 code, it is suitable for critical sealing applications with high thermal expansion, cyclic loading such as Risers, single point mooring systems, manifolds, X-Trees, sub-sea pipelines, heat exchangers and a multitude of process piping systems.

RCF Advantage

Space saving
Weight saving up to 70%~80% than ANSI flanges
Double independent seals make it safer
Positive sealing method
Integrated sealing system (both inside and outside)
Larger range in design temperature and pressure

RCF Working Principle

The RCF compact flange design principle is that the flange face includes two independent seals. The first seal is created by application of seal seating stress at the flange heel. The main seal is the IX seal ring. The seal ring force is provided by the elastic stored energy in the stressed seal ring. Any heel leakage will give internal pressure acting on the seal ring inside intensifying the sealing action.

RCF Size and Pressure Rating

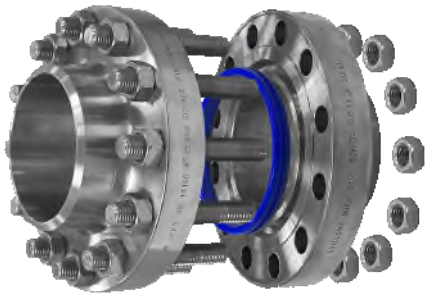
1/2"~48" in size and CL150 to 10000psi (non-standard) in pressure rating. Bigger size and higher-pressure rating on request.

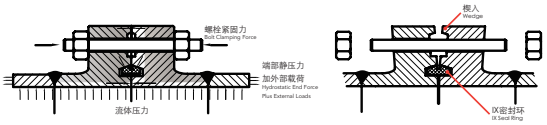
RCF Gasket

RCF IX seal ring, axial forces are exerted on the taper of the metal seal ring and translated into a radial sealing force. Furthermore, with increased pre-load, the bevel is closed and face to face contact is achieved at the outer wedge while most of the bolt pre-load is transferred as compressive forces between the flange faces at the heel.

RCF Design and Verification

Roc-Master provides calculation service based on ASME section VIII Division 2 and PD5500.
Also, we have ANSYS software engineers to do analysis and design verification.





Double Studded Adapter (DSA)

Design Standard:

ASME B16.5, API 6A, MSS SP-44
ASME VIII Div. 2.0, DNV-ST-F101
ISO 15590-2, ASME B31.3, ASME B31.8

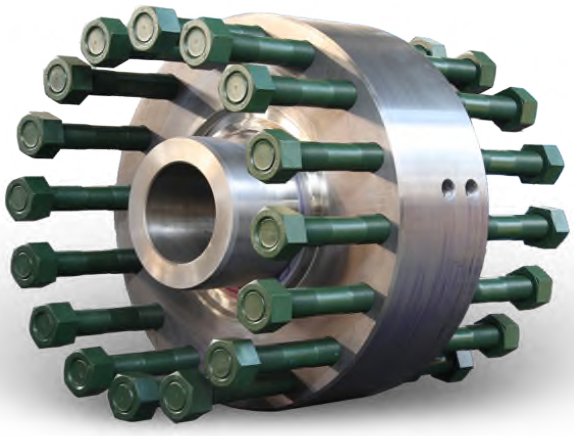
Size and Class:

Any size and pressure rating

Coating:

F.B.E, Carboline, etc. as required

Studded Adapter is an adaptor flange. It is used for switching API 6A, API 17D high pressure wellhead and Christmas tree system to normal pressure piping system. We can provide both double and single type of studded adapter.

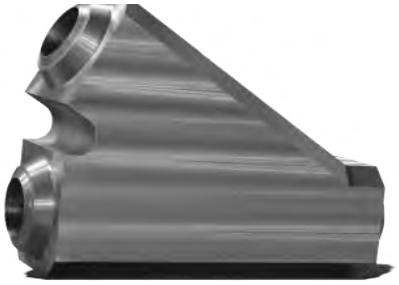


- Material can be customized.
- Size and pressure ratings can also be customized.
- The matching bolts and nuts of various materials are available.
- Weld overlay is available, lower costs.

Special Forgings

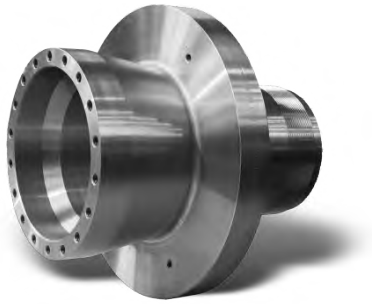
Design & Standard:

MSS SP-79, MSS SP-83, MSS SP-95, MSS SP-97
ASME VIII Div. 2.0, DNV-ST-F101, ISO 15590-2
ASME B31.3, ASME B31.8



Materials:

- Carbon Steel
  ASTM A105, ASTM A350 LF1, LF2, LF3, LF6
- High Yield Strength Low Alloy Steel
  ASTM A694 F42, F46, F52, F56, F60, F65, F70
- Stainless Steel
  ASTM A182 F304/304L, F316/316L, F321, F347, F44 (UNS S31254)
- Alloy Steel
  ASTM A182 F1, F5, F9, F11, F12, F22, F91
- Duplex Stainless Steel
  ASTM A182 F51/UNS S31803, F53/UNS S32750, F55/UNS S32760
- Special Alloy
  Monel 400, Monel K-500, Inconel 600, Inconel 625, Inconel 718, Inconel X-750, Incoloy 800, Incoloy 800H, Incoloy 825, Hastelloy C276



Class:

Class 2000, 3000, 6000, 9000
Sch10S ~ Sch80S, Sch40 ~ Sch160

Dimension:

Customized

Type:

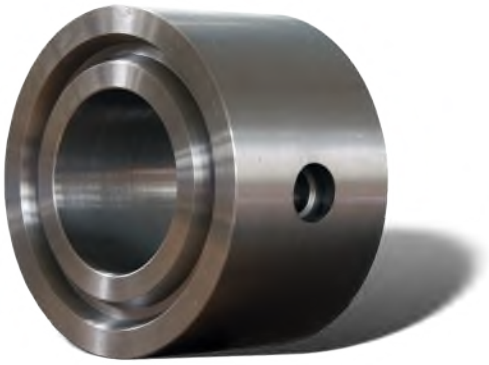
WYE Tee, Forged Y Piece, Forged Subsea Barred Tee, Sand Tee, 45° Forged Lateral Tee
Subsea Metal Flexible Tube Connector
Subsea Valve Body Forging
Forged 90° Elbow
Flange Orifice Plate
J Collar

Specification:

ANSI B16.5, ANSI B16.47, Series A & B, ANSI B16.48
MSS SP-44, API 6A, NORSOK L-005, DNV-ST-F101
ISO 15590-3, NACE MR0175
ISO 15156, NACE MR0103

Materials:

- Carbon Steel
  ASTM A105
- High Yield Strength Low Alloy Steel
  ASTM A694 F42, F46, F52, F56, F60, F65, F70, F80
- Stainless Steel
  ASTM A182 F304/304L, F316/316L, F316H, F310, F321, F44 (UNS S31254)
- Alloy Steel
  ASTM A182 F1, F5a, F9, F11, F12, F22, F91
  AISI 4130 (M), 4140, 4340, 8630(M)
- Duplex Stainless Steel
  ASTM A182 F51/UNS S31803, F53/UNS S32750, F55/UNS S32760
- Special Alloy
  Monel 400, Monel K-500
  Inconel 600, Inconel 625
  Inconel 718, Inconel X-750, Incoloy 800
  Incoloy 800H, Incoloy 825, Hastelloy C276
- Carbon and Low-Alloy Steel for Low-temperature
  ASTM A350 LF1, LF2, LF3, LF6, A522 Type 1
- Copper Nickle Alloy
  Cu-Ni 90/10, Cu-Ni 70/30



Size and Rating:

1/2" ~ 60", ANSI CL150 ~ CL2500
1 13/16" ~ 30", API 2000psi ~ 20000psi

Face Type:

- Flat Face, Raised Face, Ring Joint Face, Lap-Joint Face, Large Male-Female, Small Male-Female, Large Tongue & Groove, Small Tongue & Groove, IX Seal, Weld Overlay

Flange Type:

- Swivel Ring Flange, Anchor Flange, Hanger Flange, Bulkhead
- Compact Flange
- Welding Neck Flange, Long Welding Neck Flange, Lap-Joint Flange, Blind Flange, Slip-On Flange, Threaded Flange, Reducing Flange, Socket Weld Flange, Orifice Flange
- Spectacle Blind, Spacer, Bleed Ring

Specification:

ANSI B16.9, ANSI B16.28
MSS SP-43, MSS SP-75

Material:

- Carbon Steel
  ASTM A234 WPB, WPC; ASTM A420 WPL1, WPL3, WPL6
- High Yield Strength Alloy Steel
  ASTM A860 WPHY 42, WPHY 46, WPHY 52, WPHY 56,
  WPHY 60, WPHY 65, WPHY 70
- Stainless Steel
  ASTM A403 WP304/304L, WP316/316L, WP321, WP347, WPS31254
- Alloy Steel
  ASTM A234 WP1, WP12, WP11, WP22, WP5, WP9, WP91
- Duplex Stainless Steel
  ASTM A815 UNS S31803, UNS S32750, UNS S32760
- Special Alloy
  Monel 400, Monel K-500, Inconel 600, Inconel 625,
  Inconel 718, Inconel X-750, Incoloy 800, Incoloy 800H,
  Incoloy 825, Hastelloy C276

Wall Thickness:

- Carbon Steel & Alloy Steel:
  STD, XS, XXS, Sch10-Sch160
- Stainless Steel:
  STD, XS, XXS, Sch10S-Sch160

Size:

Carbon Steel: 1/2"~72"
Stainless Steel:
Seamless & Welded 1/2"~48"
Welded: 26"~72"

Type:

45°, 90°, 180° Long / Short Radius Elbows, Equal Tees,
Reducing Tees, Equal Crosses, Reducing Crosses, Concentric Caps,
Eccentric Reducers, Caps, Stub Ends, Barred Tee

Hot Induction Bend, Cold Bend:

- Bending Process: Hot Induction and Cold Bending
- Bending Radius: 3D~10D or on request
- Bending angle:
  Cold Bending 1°~180°
  Hot Induction Bending 1° ~100°
- Diameter of Bend: 4"~24"
- Wall Thickness of Bend: STD~75mm

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Roc-Master®

Piping Solutions

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