



PIPING TECHNOLOGY

SHENYANG EMT PIPING TECHNOLOGY CO.,LTD.





CONTENTS



01 Company Introduction

Company Introduction	01
Qualification	03

02 Product Introduction

Pipeline Pig	05
Pipeline Pig Accessory	19
Pig Signaller	23
Corrosion Coupon	43
Chemical Injection Quill	47
Corrosion Probe	53
Retrieval Tool	54
Quick Opening Closure	55
Pig Launcher And Receiver	59
DBB Valve	65
Monolithic Insulating Joints	67

03 Partnership

04 Project Performance

COMPANY INTRODUCTION

Shenyang Institute of Sources Technology Development (SISTD) was established in 1993. Now, it has developed into a scientific and technological development enterprise integrating scientific research, development, production, sales and service. Since its establishment, SISTD has insisted on product innovation and customer first, and has developed LCQZ series of electronic pigs and complete sets of instruments; SN series of chemical injection quill; Series of pressure level transmitters and other products. These products are widely used in petroleum, electric power, chemical industry, machinery and other fields. And the above products have been used in Daqing Oilfield and Liaohe Oilfield for a long time, and have been unanimously recognized by users.

On the basis of the above, we actively explore overseas markets, and specially established Emt Piping Technology Co.,Ltd. to develop overseas business. After years of hard work by the team, our products have been exported to more than 50 countries and regions. And our products are also widely praised by foreign customers, and have established long-term cooperative relations with many overseas oil companies, which have been widely recognized.

For 30 years, we have been rooted in the piping equipment manufacturing industry and have focused on the technology in this field. The concept of "Customer's demand as the direction, technological innovation as the purpose" allows us to make steady progress and make progress. In the future, we are still willing to uphold this concept and cooperate with customers at home and abroad for mutual benefit and common prosperity.



Corporate Culture



Mission

Survive by quality, develop by technology



Principle

Quality first, reputation first, leading technology, considerate service

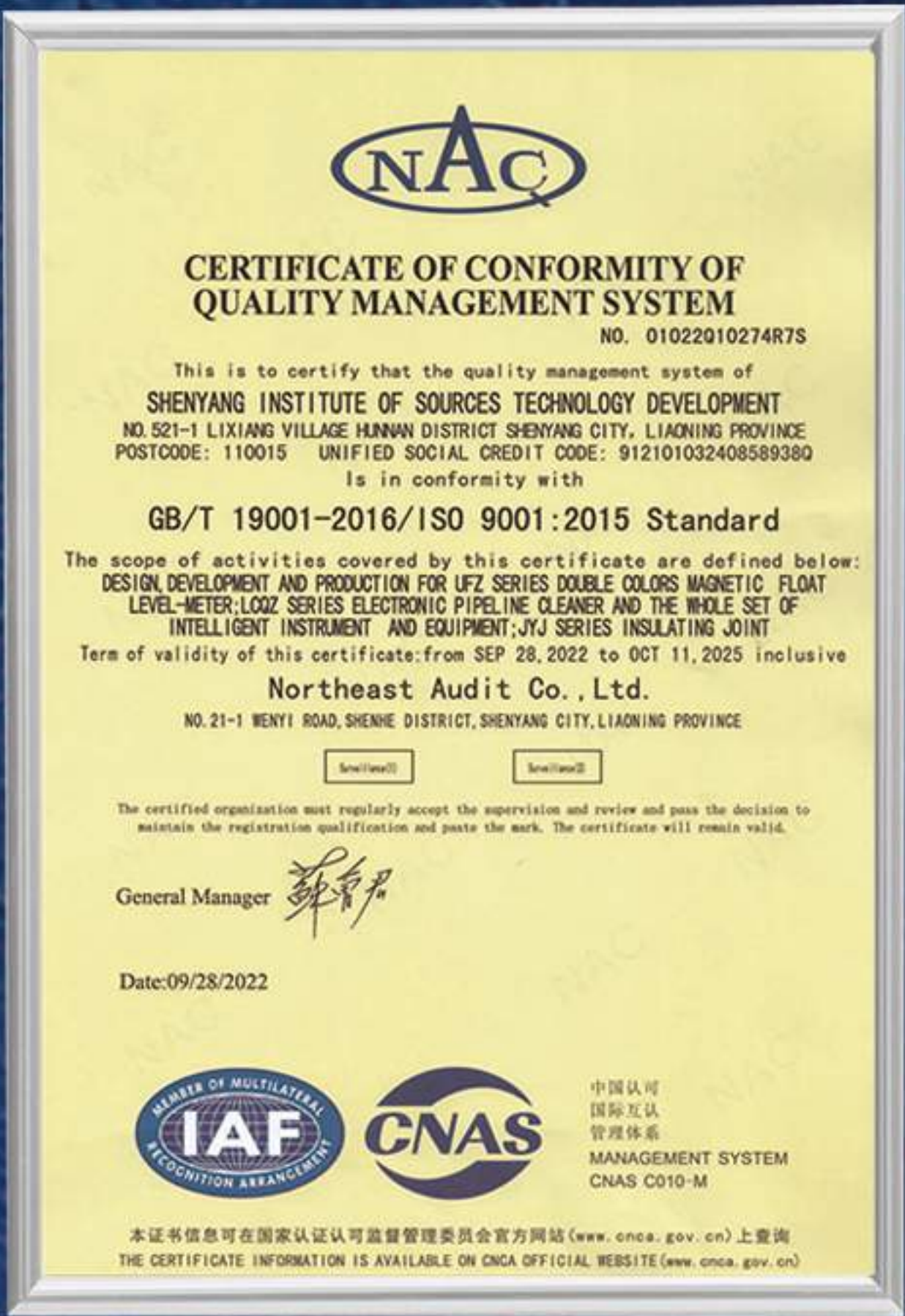


Values

Action as the cornerstone, innovation as the impetus, demand as the guidance, sincerity as the attitude

COMPANY QUALIFICATION







Product Introduction

01 PIPELINE PIG

Introduction

EMT LCQZ series pipeline pigs are the equipment to clean pipeline. The outer edge of pipeline pig is elastotically sealed to the inner wall of pipeline. Using gas, liquid or pipeline transport medium as the power source, the pig in the pipeline is pushed forward to the end of pipeline or the pig receiver.

This product can be used for sweeping pipeline and cleaning various impurities after finished the pipe construction and pre-silicon. And it can also check the roundness error before usage and whether the position of live ball valve and pipeline diameter are accurate after opening valve.

Applicable Condition

- Size Range: 2” ~ 64”
- Medium Temperature: -40℃ ~ 90℃
- Elbow curve radius: R≥1.5D(When pipeline nominal diameter≥150)
R≥2.5D(When pipeline nominal diameter≤100)
- Equal-diameter T-junction of piping should have spherical grate.
- Pipeline’s deformation rate is lower than 10%.
- The main pipeline should use ball valve.
- Metal or non-metal pipeline that can under take the pressure after cleaning.
- Putting right directional cover in the flexible compensation parts.

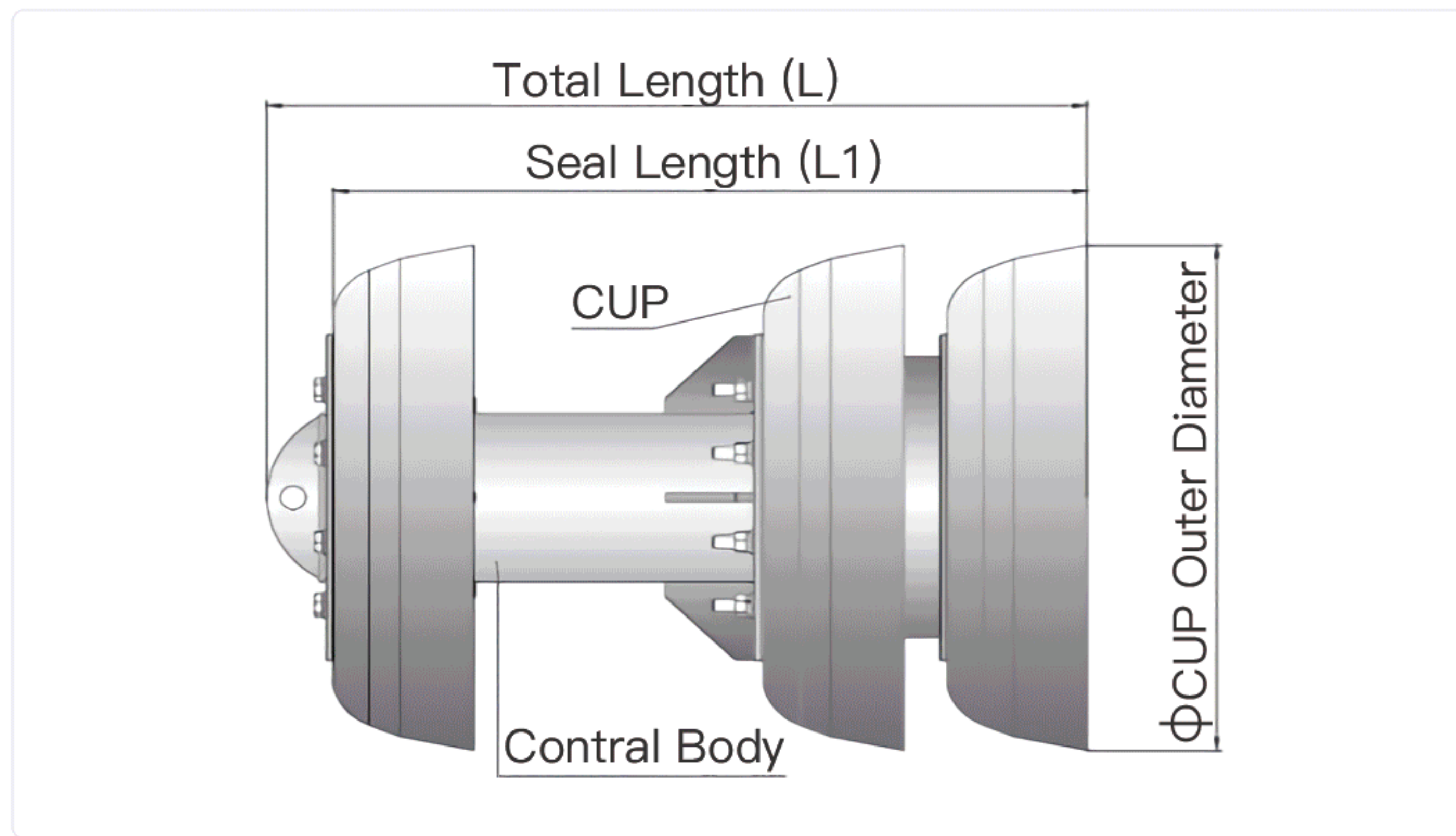
Polyurethane Test Report

Test Project	Test Report	Test Method
Shore Hardness/Shore A	85±2	GB/T 531.1-2008
DIN Abrasion[mm³]	30	GB/T 53516
Akron abrasion[cm³/1.61km]	0.05-0.06	GB/T 1689-1998
100% Modulus[MPa]	4.6	GB/T 528-2009
300% Modulus[MPa]	9.5	GB/T 528-2009
Elongation at Break[%]	790	GB/T 528-2009
Tensile Strength[MPa]	50.1	GB/T 528-2009
Tear Strength(Right Angle)[KN/m]	74	GB/T 528-2008
Compression Set[%]	33	GB/T 1681-2009

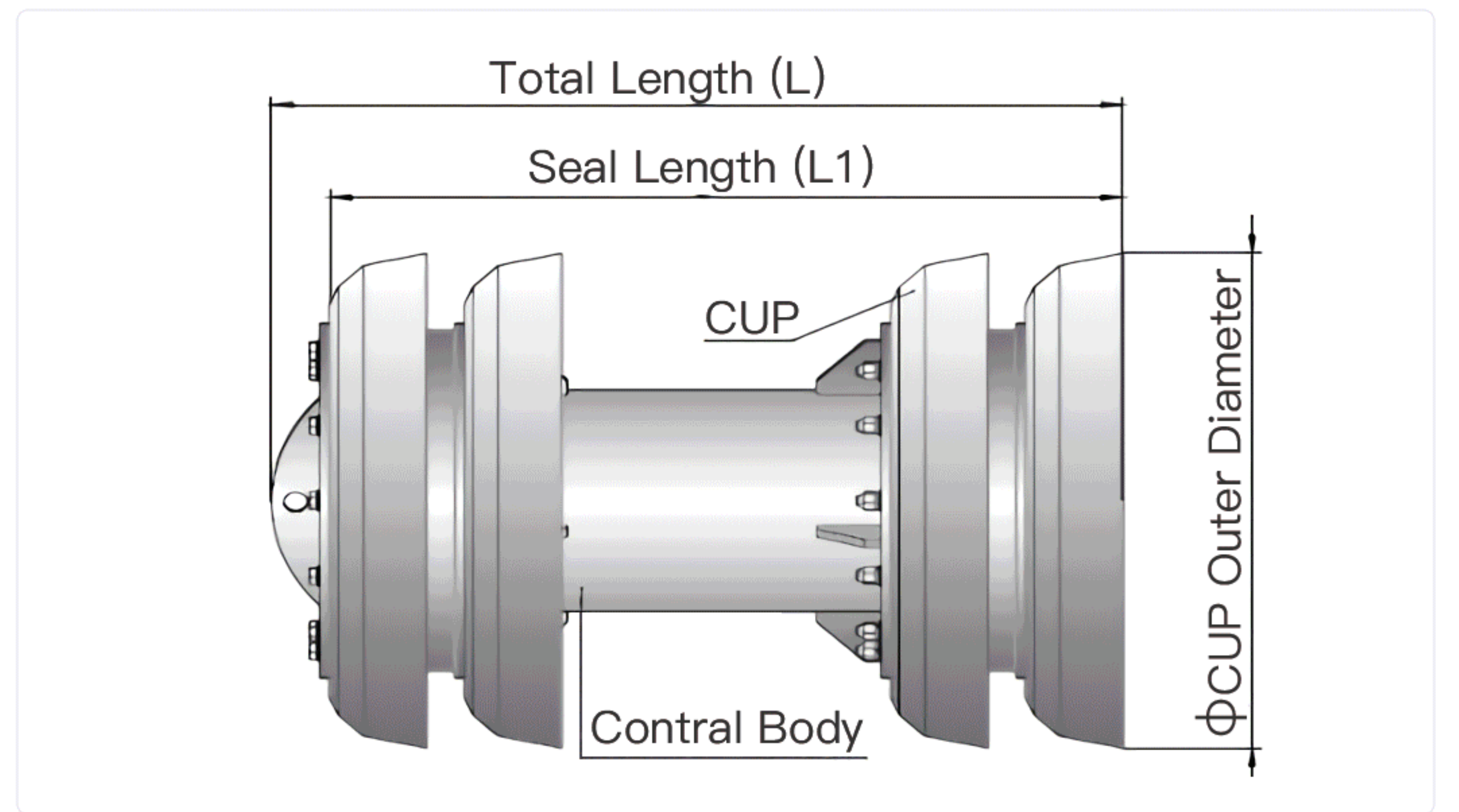


1) LCQZ Mechanical Pig

■ CZ Cup Pig



Type II



Type III

Note

1. Minimum elbow radius range(mm): DN50: 8DN, DN65: 4DN, DN80–DN100: 2.5DN, above DN150: 1.5DN (DN—pipeline nominal diameter)
2. For nominal diameter DN50–DN100, 2 leather cups are used, related parameters in table 1.



(Table 1)

Nominal Diameter (DN)	Sealing Diameter (φ)	Pipeline Outside Diameter (φ)	Sealing Length (L1)		Total Length (L)	
			Type II	Type III	Type II	Type III
Type I 50	57	60	177	—	122	—
Type I 65	73	76	120	—	130	—
Type I 80	84.5	89	123	—	130	—
Type I 100	103.5	108	160	—	170	—
Type I 100	108.5	114	160	—	170	—
150	155	159	220	230	270	280
150	168	168.3	220	230	270	280
150	159	159	205	215	275	285
200	219	219	274	284	302.5	312.5
250	273	273	338	358	373	393
300	325	323.9	385	405	439	459
300	325	325	385	405	439	459
350	363	355.6	460	480	501	521
350	380	377	460	480	501	521
400	410	406.4	540	560	580	600
400	426	426	540	560	580	600
450	462	457	548	678	584	614
500	509	508	670	700	716	746
500	542	529	670	700	716	746
550	572	559	740	780	798	838
600	620	610	800	840	858	898
600	640	630	820	870	900	950
650	670	660	870	910	950	990
700	724	711	942	982	1014	1054
750	775	762	1010	1050	1090	1140
800	824	813	1076	1126	1156	1206
850	880	864	1130	1190	1210	1270
900	944	914	1150	1210	1212	1272
950	990	965	1300	1360	1380	1450
1000	1000	1016	1380	1450	1444	1514

Structure

- The main body of the scraper is steel frame
 - Come with 2–4 sealed cups
 - Electronic positioning transmitter can be carried
-

Performance

- Good sealing property
 - Effective running distance is 100–150 miles
 - Best running speed is 1–3m/s
-

Application

- It is applied to pigging before production, cleaning the stones, wood bars and other matters left in the pipeline
 - Cleaning and nitrogen replacement after natural gas lines go into operation. Exhaust before water pressure test and drainage after the test
 - Segregate medium insulation within mixed pipelines
-

Medium applied

- Raw oil, product oil, edible oil, natural gas, LNG, chemical materials, coal water slurry, sewage, running water, etc



LCQZ-CZ-I Cup Pipeline Pigs

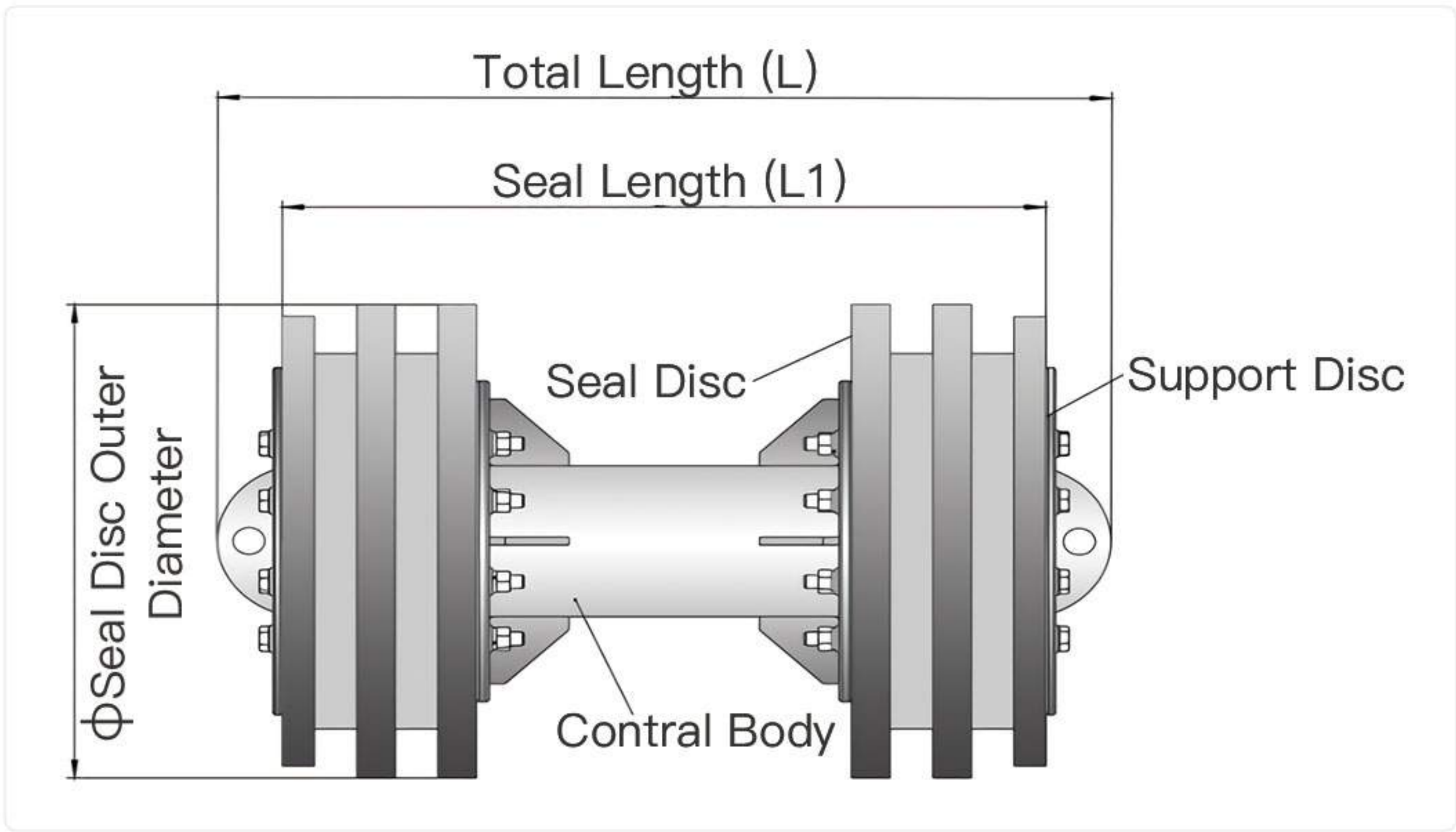


LCQZ-CZ-II Cup Pipeline Pigs



LCQZ-CZ-III Cup Pipeline Pigs

ZF Disc Pig



Disc Pig

(Table 2)

Nominal Diameter (DN)	Sealing Diameter (φ)	Pipeline Outside Diameter (φ)	Sealing Length (L1)	Total Length (L)
100	105	108	160	170
100	112	114	160	170
150	155	159	220	280
150	164	168.3	220	280
200	216	219	274	340
250	270	273	338	460
300	322	323.9	385	530
300	322	325	385	530
350	351	355.6	460	560
350	373	377	460	560
400	404	406.4	540	640
400	423	426	540	640
450	458	457	548	700
500	510	508	670	800
500	533	529	670	800
550	563	559	740	860
600	616	610	800	920
600	637	630	820	950
650	665	660	870	990
700	715	711	942	1060
700	724	720	975	1090
750	768	762	1010	1140
800	821	813	1076	1210
800	825	820	1080	1215
850	869	864	1130	1270
900	919	914	1150	1295
950	971	965	1300	1450
1000	1023	1016	1380	1580





LCQZ-ZF Disc Bi-Di Pipeline Pigs



LCQZ-ZF Disc With Brush Bi-Di Pipeline Pigs

Structure

- Steel frame with 2 guide discs
- 4–6 sealing discs
- Electronic positioning transmitter can be carried

Performance

- Valid operation distance is 100–150 miles
- Best operation speed: 1–2m/s (pressure source is liquid)
1–3m/s (pressure source is air)
- Can operate bidirectional

Application

- Used for pipeline's cleaning, water discharge, water blocking, dielectric isolation and in the river
- After encountering blocking, increasing the pressure in the opposite direction can back to the original place

Medium applied

- Crude oil, product oil, edible oil, natural gas, LNG, chemical materials, coal water slurry, sewage, running water, etc

2) Foam Pig



LCQZ-RTH Bi-Di Foam Pigs



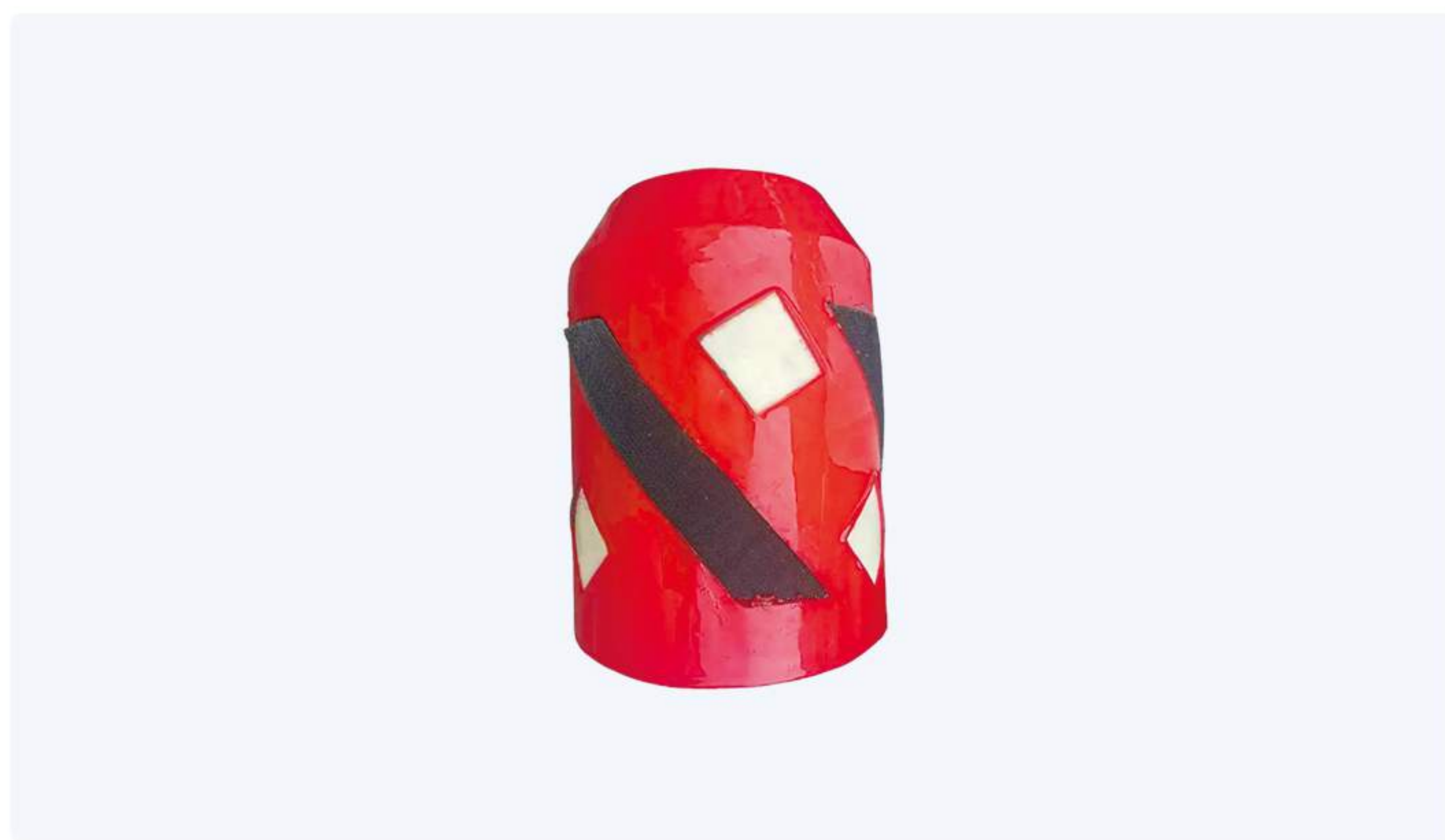
LCQZ-RTN Foam Pigs



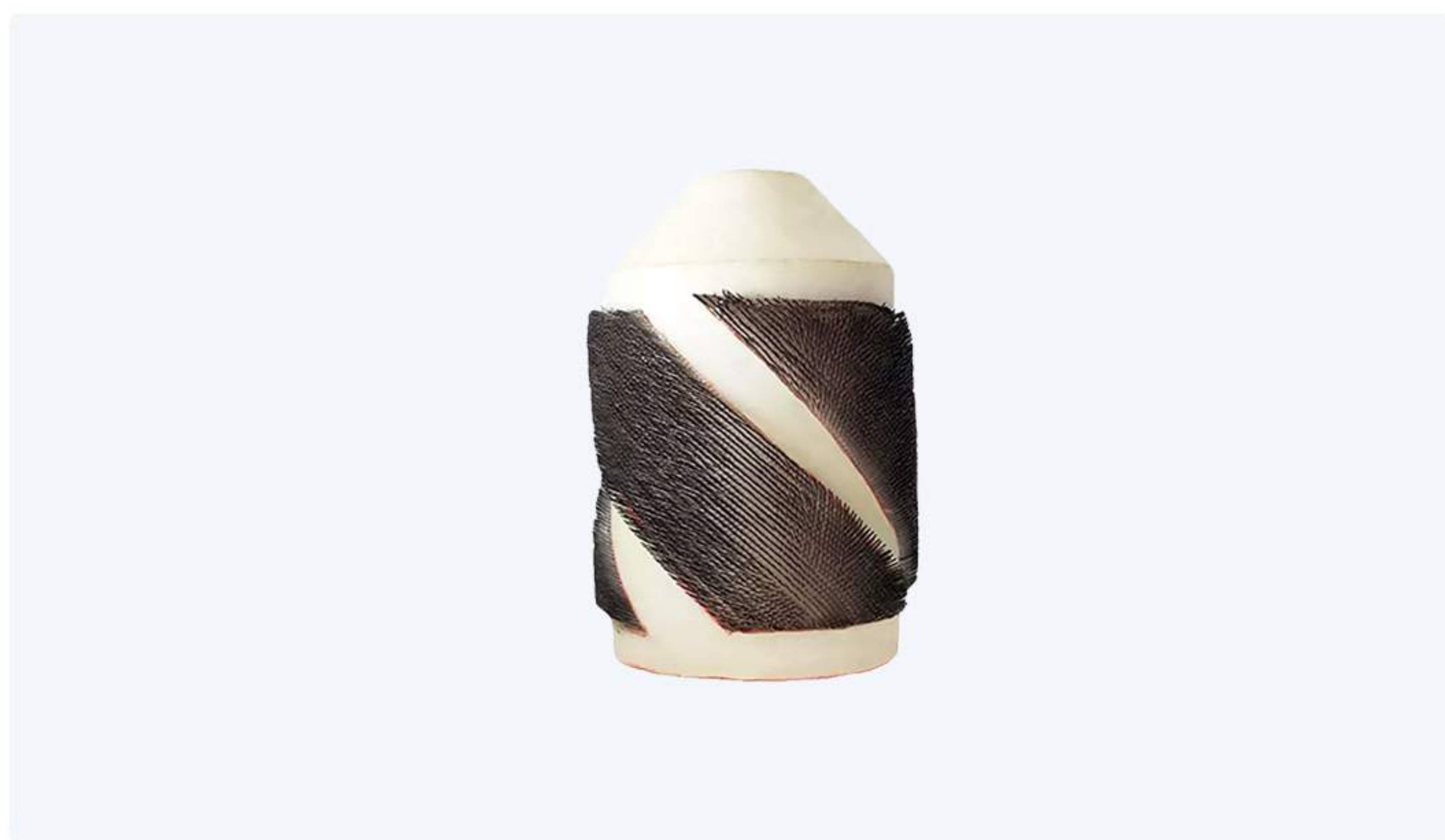
LCQZ-RTR Foam Pigs



LCQZ-RTCC Foam Pigs



LCQZ-RTCB Foam Pigs



LCQZ-RTNB Foam Pigs

Hygroscopic Bi-Di Foam Pig Table

Name	Hygroscopic Bi-Di Foam Pig	
Model	LCQZ-RTH	
Performance	<div>[1] It is formed by one-time foaming of polyether polyurethane material;</div> <div>[2] Soft texture, good elasticity;</div> <div>[3] It has strong water absorption performance, and the deformation amount can reach 70%;</div> <div>[4] Remarkable effect on dewatering, degreasing and drying of pipelines.</div>	
Technical Parameters	<div>Starting pressure: 0.2-0.3 MPa</div> <div>Withstand pressure: 7 MPa</div> <div>Compression ratio: 60</div> <div>Attrition rate: 4 mm/100 km</div> <div>Operating temperature: -30°C~100°C</div>	<div>Density: 35 kg/m³~150 kg/m³</div> <div>Stretch rate: 320%</div> <div>Flex life: 50,000 times</div> <div>Operating distance: 50 km~150 km</div>

Bare Foam Pig Table

Name	Bare Foam Pig	
Model	LCQZ-RTN	
Performance	<div>[1] Soft texture and good flexibility;</div> <div>[2] With strong water absorption, the deformation amount can reach 60%;</div> <div>[3] Used for dewatering, cleaning and drying of pipelines.</div>	
Technical Parameters	<div>Starting pressure: 0.02 MPa</div> <div>Withstand pressure: 7 MPa</div> <div>Compression ratio: 60</div> <div>Attrition rate: 4 mm/100 km</div> <div>Operating temperature: -30°C~100°C</div>	<div>Density: 35 kg/m³~220 kg/m³</div> <div>Stretch rate: 320%</div> <div>Flex life: 50,000 times</div> <div>Operating distance: 50 km~150 km</div>

Polly Foam Pig Table

Name	Polly Foam Pig	
Model	LCQZ-RTR	
Performance	<p>[1] Its interior is foamed by polyurethane material. The surface is coated with a polyurethane elastomer coating;</p> <p>[2] Good flexibility and certain wear resistance;</p> <p>[3] The deformation amount can reach 50%, which is the most widely used foam pig;</p> <p>[4] Used for scrubbing, descaling and fluid isolation of pipes.</p>	
Technical Parameters	Starting pressure: 0.02 MPa Withstand pressure: 7 MPa Compression ratio: 50 Attrition rate: 2 mm/100 km Operating temperature: -30°C~100°C	Density: 35 kg/m ³ ~220 kg/m ³ Stretch rate: 320% Flex life: 50,000 times Operating distance: 100 km~300 km

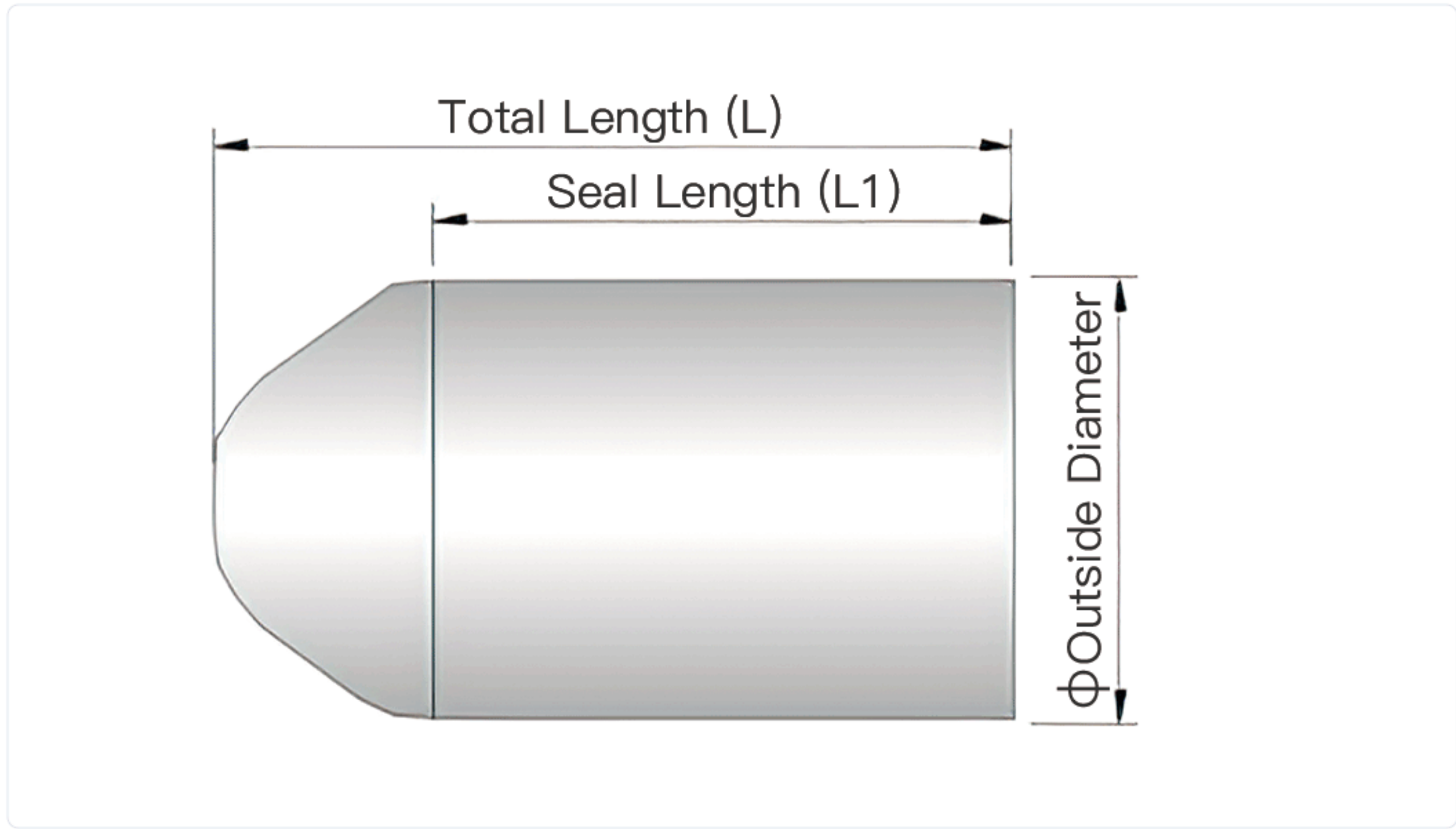
Criss cross Foam Pig With Brush Table

Name	Criss cross Foam Pig With Brush	
Model	LCQZ-RTCB	
Performance	<p>[1] The interior is foamed by polyurethane material, and the surface is coated with an elastomer coating;</p> <p>[2] Paste the spiral wire brush;</p> <p>[3] The deformation amount can reach 40%, which is both elastic and will not fall off;</p> <p>[4] It is used to remove the hard scale of the pipeline, and has better rust removal and decontamination effects.</p>	
Technical Parameters	Starting pressure: 0.2-0.3 MPa Withstand pressure: 7 MPa Compression ratio: 50 Attrition rate: 2 mm/100 km Operating temperature: -30°C~100°C	Density: 35 kg/m ³ ~220 kg/m ³ Stretch rate: 320% Flex life: 50,000 times Operating distance: 100 km~300 km

Criss cross Foam Pig Table

Name	Criss cross Foam Pig	
Model	LCQZ-RTCC	
Performance	<div>[1] The interior is foamed by polyurethane material, and the surface is covered with a prismatic block polyurethane elastomer.</div> <div>[2] High surface hardness and large friction coefficient;</div> <div>[3] Has high elasticity and toughness;</div> <div>[4] Used for pipeline cleaning, cleaning, cleaning impurities</div>	
Technical Parameters	<div>Starting pressure: 0.02 MPa</div> <div>Withstand pressure: 7 MPa</div> <div>Compression ratio: 50</div> <div>Attrition rate: 2 mm/100 km</div> <div>Operating temperature: -30℃~100℃</div>	<div>Density: 35 kg/m³~220 kg/m³</div> <div>Stretch rate: 320%</div> <div>Flex life: 50,000 times</div> <div>Operating distance: 100 km~300 km</div>





Foam Pig

Note

- 1. The picture shows the basic type of foam pig;
- 2. The transmitter can be installed;
- 3. Special sizes can be made according to customer requirements;
- 4. The radius of curvature of the pipeline elbow is $R \geq 1.0D$.

Structural dimension table

Nominal Diameter (DN)	Outside Diameter (D)	Pig Outer Diameter (φ)	Total Length (L)	Sealing Length (L1)	Reference Weight		
					Bare	Polly	Brush
100	108	105	160	140	0.16	0.31	0.41
100	114.3	110	170	150	0.18	0.33	0.43
150	159	155	250	210	0.45	0.73	0.93
150	168.3	160	256	220	0.50	0.80	1.00
200	219.1	210	330	290	1.20	1.66	2.00
250	273	265	420	370	2.23	3.26	3.96
300	323.9	315	500	440	3.45	4.90	5.80
300	325	320	510	450	3.75	5.20	6.20
350	355.6	350	560	490	4.90	6.50	7.80
350	377	360	576	500	5.30	7.20	8.40
400	406.4	400	640	560	7.60	10.30	11.10
400	426	420	672	580	8.80	11.00	12.20
450	457	450	720	630	10.50	13.40	15.00
500	508	500	800	700	14.50	18.00	20.50
500	529	520	830	720	16.80	21.00	23.00
550	559	550	880	770	19.40	23.70	26.70
600	610	600	960	840	25.00	30.00	34.00
600	630	620	990	860	28.00	32.00	35.50
650	660	650	1000	900	32.00	37.50	42.00
700	711	700	1100	950	40.00	46.00	51.00
750	726	750	1150	1000	49.50	57.00	62.00
800	813	800	1200	1050	62.00	70.00	77.00
850	864	850	1250	1100	72.00	82.00	90.00
900	914	900	1300	1150	86.00	97.00	110.00
950	965	950	1400	1200	101.00	114.00	130.00
1000	1016	1000	1500	1300	118.00	132.00	150.00

3) Solid Cast Pig

Introduction

- Solid cast pigs are all made of polyurethane. It has a good effect of cleaning the pipeline, no skeleton, and has good passability

Hardness level

- Default Shore hardness is 65±5A, 75±5A, 85±5A

Application

- It is suitable for cleaning and descaling of thick and irregular pipelines. It is also suitable for non-stop pigging operations of flammable gas medium pipelines

Applicable media

- Mainly used for cleaning of pipelines (water, gas, oil, chemical reagents and other media)



SCP-C Solid Cast Pig



SCP-D Solid Cast Pig



SCP-DC Solid Cast Pig






SCP-SE Solid Cast Pig

02

PIPELINE PIG ACCESSORY

1) Transmitter

			
Name	LCQZ-ZFS Intelligent Digital Transmitter	LCQZ-DFS High-power Transmitter	LCQZ-TFS Versatile Transmitter
Introduction	Using special integrated circuit and singlechip with more stable frequency and more available (above DN150).	Using high-power battery pack, the transmitting power is bigger and longer service hour.	Applying chargeable battery pack, rechargeable (above DN300).
Installation Size	1.2V * 10 chargeable battery pack 3.6V * 4 high energy battery	3.6V * 4 high energy battery	1.2V * 10 chargeable battery pack
Work Hour	100~200 hours	100~300 hours	50 hours
Installation Size	M64 * 1.5	M64 * 1.5	M64 * 1.5
Type	L210, L260, L310	L210, L260, L310	L210, L260
Remark	The number after “L” represents transmitter’s effective LCQZ-FS Intelligent Digital Transmitter delivered power.	The number after “L” represents transmitter’s effective LCQZ-FS Intelligent Digital Transmitter delivered power.	The number after “L” represents transmitter’s effective LCQZ-FS Intelligent Digital Transmitter delivered power.

2) Receiver



LCQZ-JS Smart Tracking and Positioning Receiver

A portable device, made up of the main machine and a probe. This instrument can receive ultra-low frequency electronic signal produced by smart electronic scraper. The LCD display on it can show the signal strength. It can recognize the ultra-low frequency electronic signal produced by electronic scraper or external interference signal by difference audio signal outputting through earphones. After the ultra-low frequency signal is recognized, the light indicator and earphone will give hints simultaneously, thus tracking and positioning can be realized.



LCQZ-TG Smart Passed Alarm Indicator

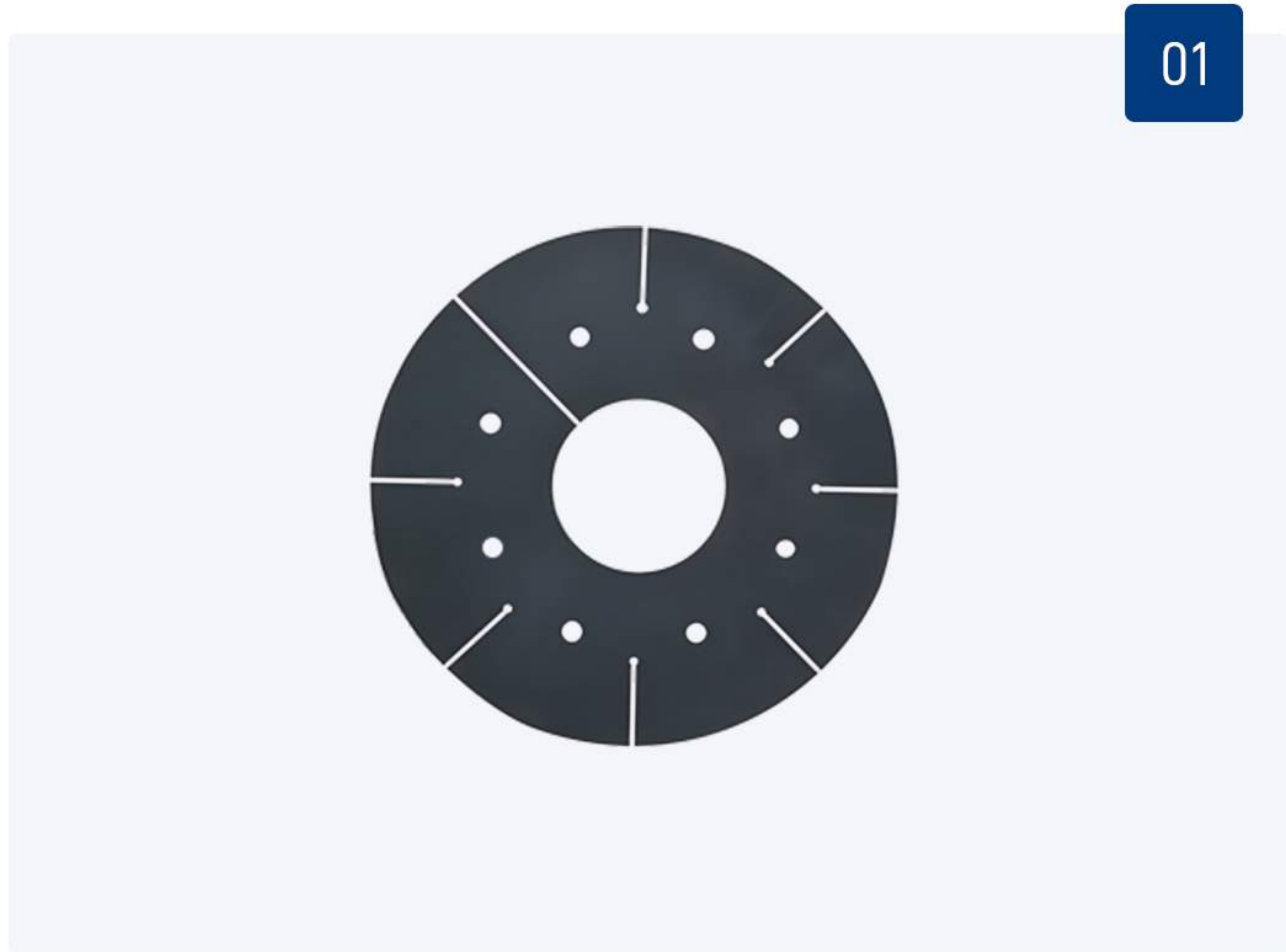
A portable device, made up of the main machine and two probes. This instrument can receive and recognize ultra-low frequency electronic signal produced by smart electronic scraper and store the time of the receipt of this signal, so that is can check if the electronic scraper passes through this place. When the pipeline is over 10000m, this instrument can monitor the position range of electronic scraper, and once there is any blocking, it can detect the position of blocking.



LCQZ-BT High Sensitivity Receiving

EMT-A500 adopts longer high sensitivity receiving antenna of magnetic material, and can work with LCQZ series ground instruments. It solves the problems of receiving and recognizing of weak scraper signal. The electronic in thick-wall pipeline, sends a signal to outside the pipeline, which is called weak signal; When using power launcher and the pipeline is buried over 3m, the ground receives weak signal. When using DN80, and buried over 1.5m, the ground receives weak signal.

3) Other Accessories



Gauging Disc

It is located in the middle of the pig and is used to detect whether the pipeline is deformed. Its material is aluminum, and the general diameter is 80%–95% of the inner diameter of the pipe.



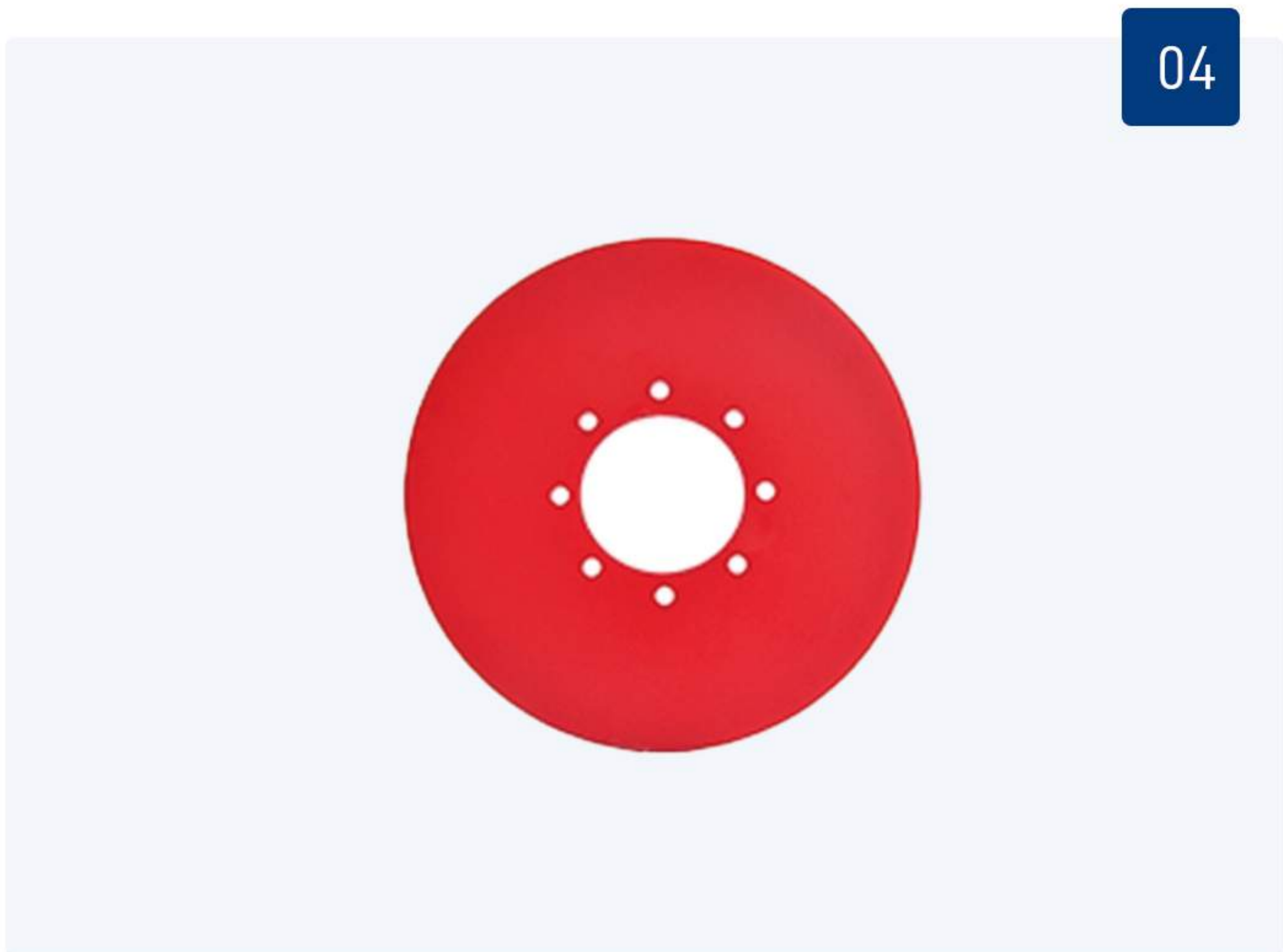
Magnetic Steel

Its material is NdFeB, which is mainly used to absorb rust.



Carbon Steel Body

It is made of carbon steel and is connected to the cup of the pigs.



Guide Disc

The material is polyurethane, which can better help the pig to enter the pipeline. At the same time, it also has the function of supporting and increasing the running distance. It also makes the front disc and cup more durable.

05



Steel Brush

It can help to clean the residual medium in the pipeline.

06



Spring Steel Brush

The material is mostly carbon steel, as well as stainless steel and nylon. It is generally placed at the front end of the pig and has a good cleaning effect.

07



Transmitter

It is used to transmit signals to locate the pig.

08



Cup

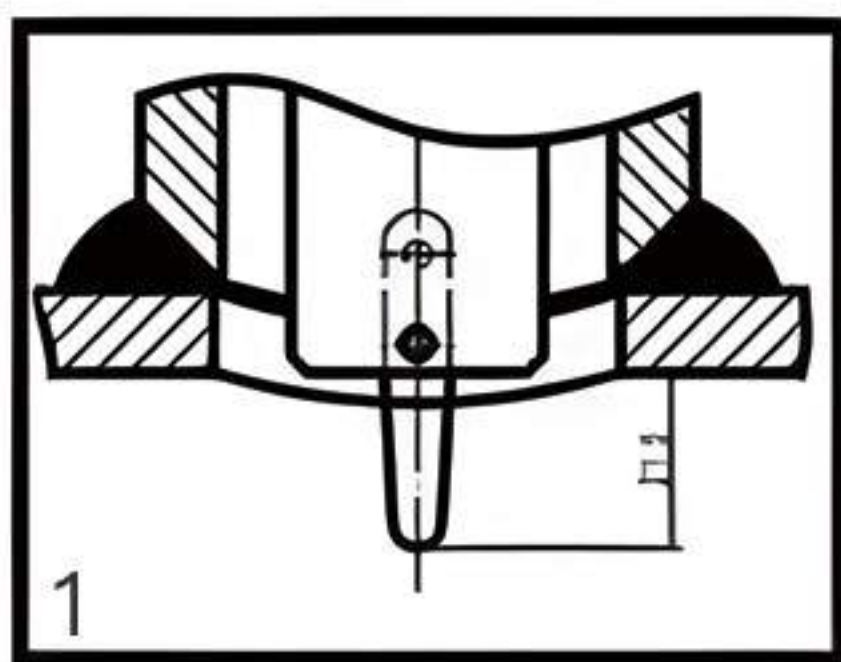
Made of polyurethane, it is the main component of the pig.

03 PIG SIGNALLER

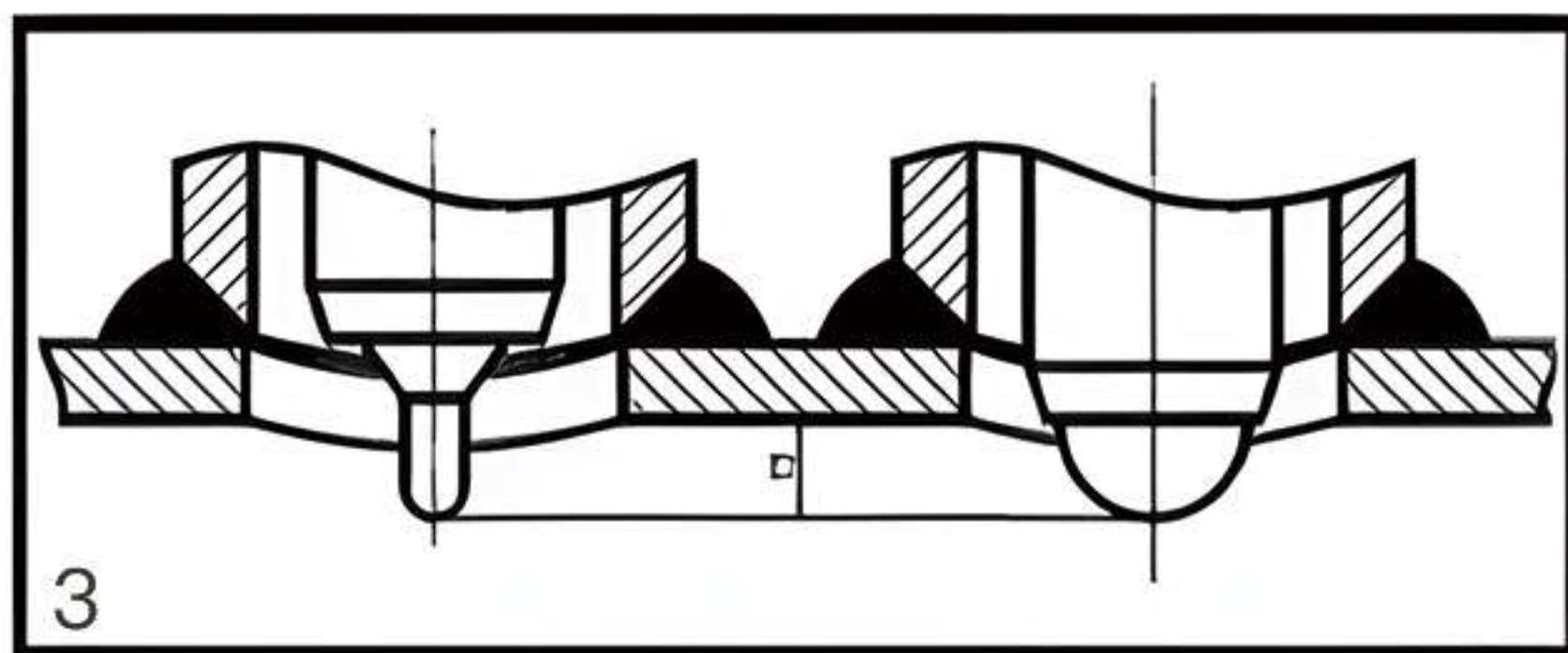
Introduction

EMT Pig Signaller are used to provide confirmation of the movement of pipeline pigs through a pipeline. They are normally positioned at both the pig launching and pig receiving stations and at key points along a pipeline.

Trigger types



Bi-directional



Uni-directional

Indicator types



Popper



Manual reset flag

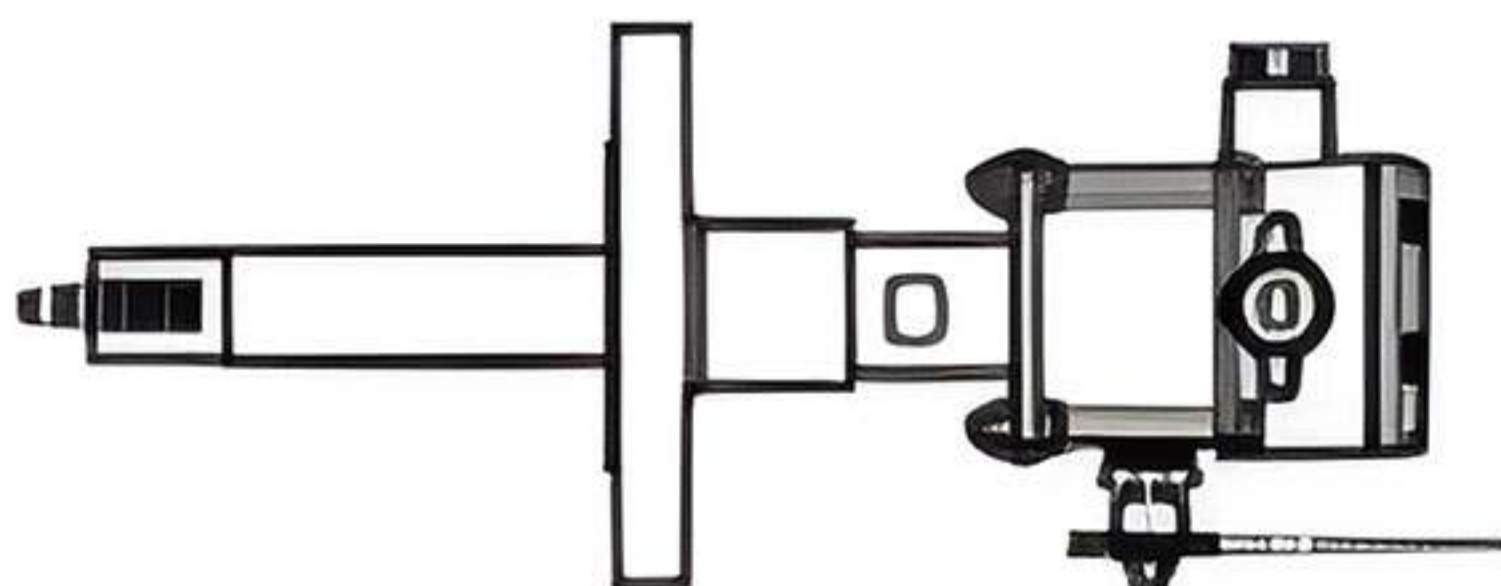


Manual reset flag
combined with electrical
switch output

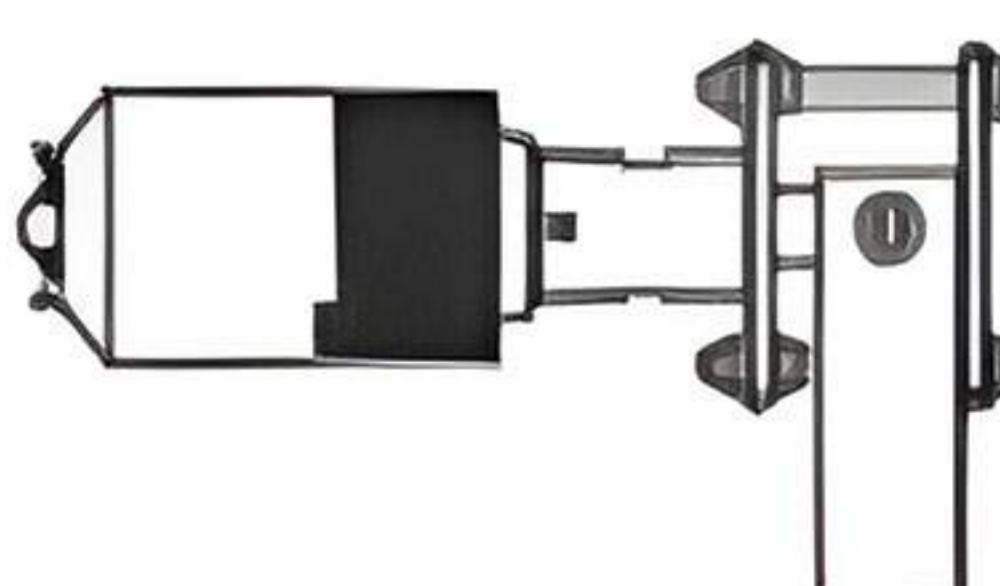


Digital display combined
with electrical
switch output

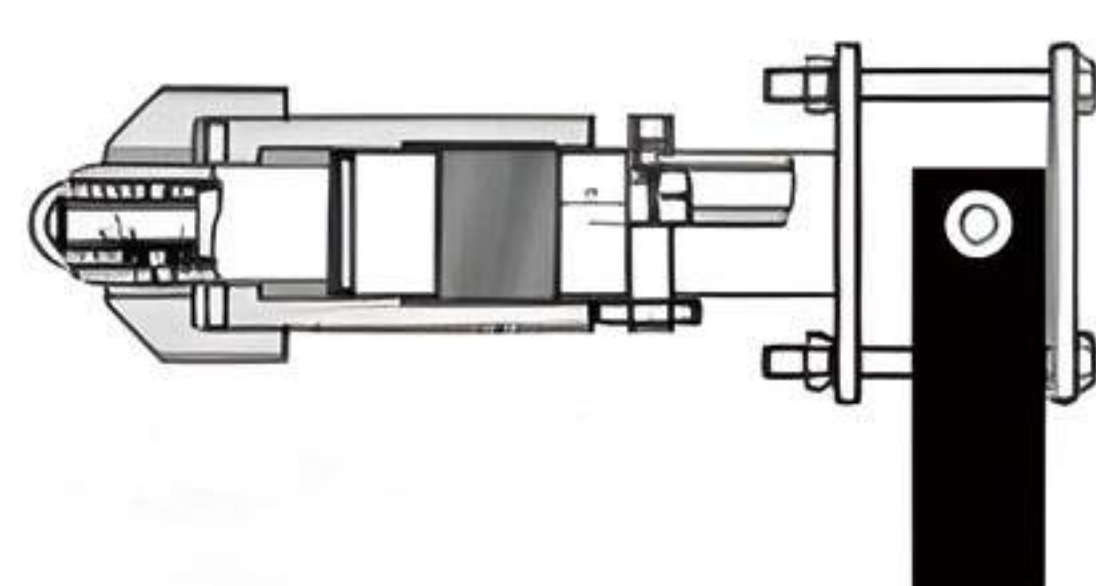
Connection types



2" flange connection



2" welded nipple



2" welded base NPT nipple connection

Model Code: SN2–TQZ–TIFPS

Model	
SN2–TQZ	PIG SIGNALLER
Code	Trigger Type
U	Uni–directional
B	Bi–directional (can be omitted)
Code	Indicator Assembly
A	Popper
B	Flag Indicator with Manual Reset
C	Flag/Eletrical Switch Output combined with Manual Reset
D	Eletrical clock indicator with Auto Reset
Code	Flange Fitting or Nipple Fitting Option
0	Carbon Steel Flange
1	304 Stainless Steel Flange
2	316 or 316L Stainless Steel Flange
3	316L Stainless Steel Flange
4	DUPLEX SS Flange
5	Inconel
6	Carbon Steel Nipple
7	316 or 316L Stainless Steel Nipple
8	316L Stainless Steel Nipple
9	DUPLEX SS Nipple
Code	Plug Assembly Material
0	Carbon Steel
1	316 or 316L Stainless Steel
2	316L Stainless Steel
3	DUPLEX SS
4	Inconel
Code	Range of Extensibility
0	Non Extension
1	12” Extension
2	24” Extension
3	36” Extension
4	48” Extension
5	60” Extension
6	72” Extension
7	84” Extension
8	96” Extension
9	108” Extension

SN2–TQZ

U

B

1

1

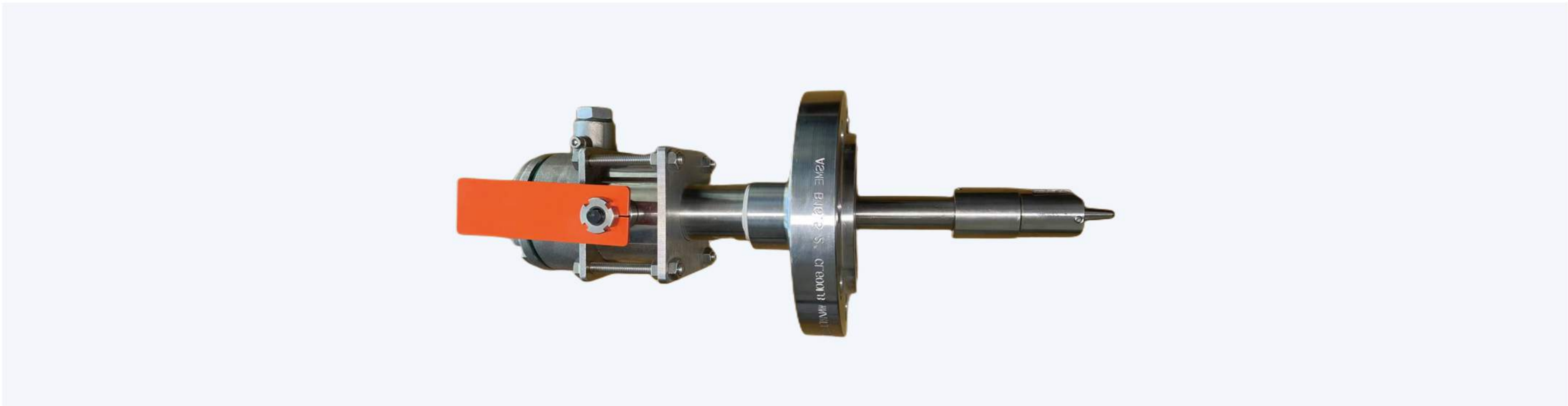
0

Example

Order Example

SN2–TQZ–BC020 is a bidirectional trigger pig signaller with manual reset flag/manual reset switch, a carbon steel flange fitting, a 316L stainless steel plug assembly, no extended shaft.

1) Pig Signaller — Flange Connection



Basic Feature or Parameter

	B	C	D
Type	Intrusive		
Indicator feature	Manual reset flag	Manual reset flag combined with electrical signals	Date and time display combined with electrical signals
Installing type	2"Flange As per ASME B16.5 (CLASS150~2500)		
Plug body length _Correspond to total stand off	200mm/Meet the actual needs		
Operating temperature	-20~120℃/Meet customer requirements		
NACE MR 0175	Yes		
Ingress protection	IP66		
Explosion-proof class		Exd II BT4	Exd II BT4
Remove under pressure	No		

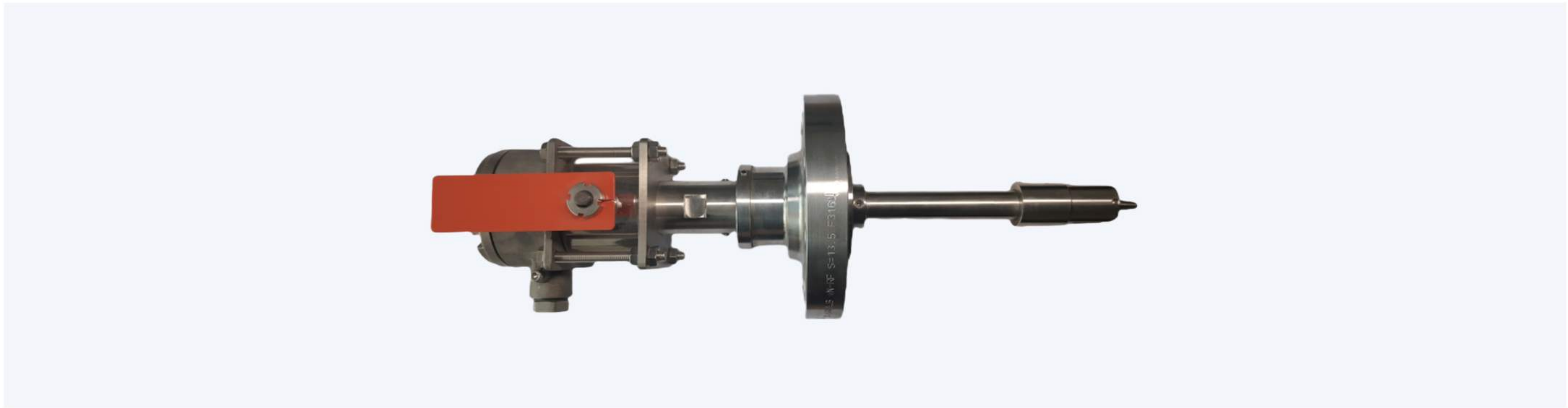
Trigger type (B–bi–directional/U–Uni–directional*)	● / ○		
Internal part material (316L SS/DSS/INCONEL)	● / ○ / ○		
Flange/Body material (PTFE Coated A105N/304SS/316LSS/ DSS/INCONEL/As per MR)	● / ○ / ○ / ○ / ○ / ○		
The position of Internal liquid surface (High_Need to heating/Low_With no need for heating) [Only uni–directional pig detectors]	● / ○		
Junction box material (Aluminium alloy/316SS)	– / –	○ / ●	● / –
Switch type (DPDT/2*SPDT)	– / –	○ / ●	○ / ●
Switch rating (DC24V 3A/DC24V 5A)	– / –	● / ○	● / –
Electrical connection size (M20×1.5(F)/1/2″NPT(F))	– / –	● / ○	● / –

* Standard configuration of Uni–directional trigger is ball shape.

Corresponding relations between trigger and Insert depth (In pipe)

Trigger type	Bi–directional	Uni–directional
Insert depth (In pipe)	21mm	13mm

2) Pig Signaller – Flange Connection 20 mm Adjustable



Basic Feature or Parameter

	B	C	D
Type	Intrusive		
Indicator feature	Manual reset flag	Manual reset flag combined with electrical signals	Date and time display combined with electrical signals
Installing type	2"Flange. As per ASME B16.5 (CLASS150~2500)		
Plug body length _Correspond to total stand off	200mm/Meet the actual needs		
Insert depth adjustment	20mm		
Operating temperature	-20~120℃/Meet customer requirements		
NACE MR 0175	Yes		
Ingress protection	IP66		
Explosion-proof class		Exd II BT4	Exd II BT4
Remove under pressure	No		

Trigger type (B–bi–directional/U–Uni–directional*)	● / ○		
Internal part material (316L SS/DSS/INCONEL)	● / ○ / ○		
Flange/Body material (PTFE Coated A105N/304SS/316LSS/ DSS/INCONEL/As per MR)	● / ○ / ○ / ○ / ○ / ○		
The position of Internal liquid surface (High_Need to heating/Low_With no need for heating) [Only uni–directional pig detectors]	● / ○		
Junction box material (Aluminium alloy/316SS)	– / –	○ / ●	● / –
Switch type (DPDT/2*SPDT)	– / –	○ / ●	○ / ●
Switch rating (DC24V 3A/DC24V 5A)	– / –	● / ○	● / –
Electrical connection size (M20×1.5(F)/1/2″NPT(F))	– / –	● / ○	● / –

* Standard configuration of Uni–directional trigger is ball shape.

Corresponding relations between trigger and Insert depth (In pipe)

Trigger type	Bi–directional	Uni–directional
Insert depth (In pipe)	21mm	13mm

3) Removable Pig Signaller – 2” welded base, NPT connection



Basic Feature or Parameter

	B	C	D
Type	Intrusive		
Indicator feature	Manual reset flag	Manual reset flag combined with electrical signals	Date and time display combined with electrical signals
Installing type	2” welded base,NPT connection,Design pressure up to 3000 Psi		
Trigger type	Uni-Directional		
Insert depth (In pipe)	13mm		
Plug body length	Settled		
Insert depth adjustment	20mm		
Operating temperature	-20~120℃/Meet customer requirements		
NACE MR 0175	Yes		
Ingress protection	IP66		
Explosion-proof class		Exd II BT4	Exd II BT4
Include isolation valve	NO		

Remove under pressure	Yes
Retriever	Special retriever

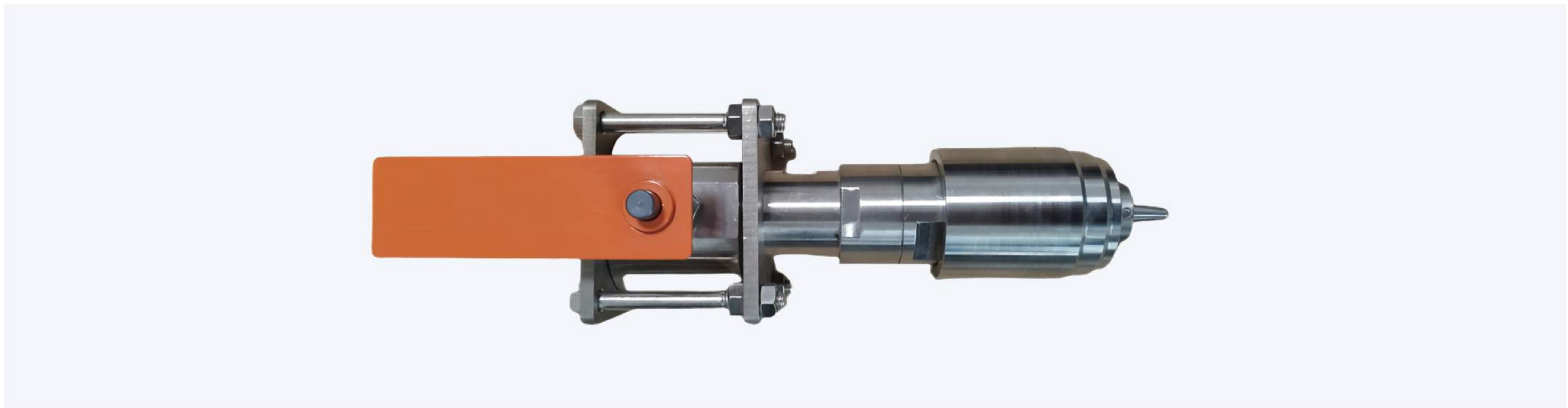
Optional Feature

• Standard configuration
 ○ Optional configuration
 – None

Internal part material (316L SS/DSS/INCONEL)	● / ○ / ○		
Nipple/Body material (A105/ 304SS/ 316LSS/ DSS/ INCONEL)	● / ○ / ○ / ○ / ○		
The position of Internal liquid surface (High_Need to heating/Low_With no need for heating)	— / ●		
Junction box material (Aluminium alloy/316SS)	— / —	○ / ●	● / —
Switch type (DPDT/2*SPDT)	— / —	○ / ●	○ / ●
Switch rating (DC24V 3A/DC24V 5A)	— / —	● / ○	● / —
Electrical connection size (M20×1.5(F)/1/2"NPT(F))	— / —	● / ○	● / —

★ Standard configuration of Uni-directional trigger is ball shape.

4) Pig Signaller – 2”Base welded



Basic Feature or Parameter

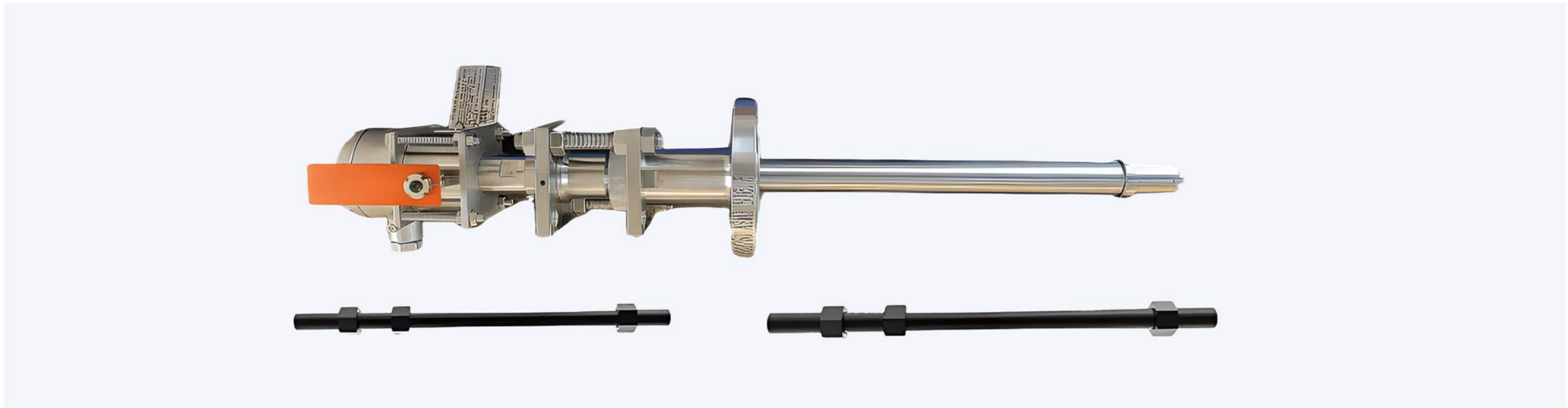
	A	B	C	D
Type	Intrusive			
Indicator feature	Manual reset pop-up	Manual reset flag	Manual reset flag combined with electrical signals	Date and time display combined with electrical signals
Installing type	2” welded base			
Insert depth adjustment	10mm			
Operating temperature	-20~120°C/Meet customer requirements			
NACE MR 0175	Yes			
Ingress protection	IP66			
Explosion-proof class		Exd II BT4	Exd II BT4	
Remove under pressure	No			

Trigger type (B–bi–directional)	●			
Internal part material (316L SS/DSS/INCONEL)	● / ○ / ○			
Body material (A105N/304SS/316LSS/DSS/INCONEL /As per MR)	● / ○ / ○ / ○ / ○ / ○			
The position of Internal liquid surface (Low_With no need for heating)	●			
Junction box material (Aluminium alloy/316SS)	– / –	– / –	○ / ●	● / –
Switch type (DPDT/2*SPDT)	– / –	– / –	○ / ●	○ / ●
Switch rating (DC24V 3A/DC24V 5A)	– / –	– / –	● / ○	● / –
Electrical connection size (M20×1.5(F)/1/2″NPT(F))	– / –	– / –	● / ○	● / –

Corresponding relations between trigger and Insert depth (In pipe)

Trigger type	Bi–directional
Insert depth (In pipe)	21mm

5) Removable Pig Signaller On Flange Valve



Basic Feature or Parameter

	B	C	D
Type	Intrusive		
Indicator feature	Manual reset flag	Manual reset flag combined with electrical signals	Date and time display combined with electrical signals
Installing type	2"Flange As per ASME B16.5 (CLASS150~1500)		
Plug body length _Correspond to total stand off	Meet the actual needs		
Operating temperature	-20~120℃/Meet customer requirements		
NACE MR 0175	Yes		
Ingress protection	IP66		
Explosion-proof class		Exd II BT4	Exd II BT4
Remove under pressure	Yes (The whole machine comes with a simple retriever_ two whole threaded studs)		

Trigger type (B–bi–directional)	●		
Internal part material (316L SS/DSS/INCONEL)	● / ○ / ○		
Flange/Body material (PTFE Coated A105N/304SS/316LSS/DSS/INCONEL/As per MR)	● / ○ / ○ / ○ / ○ / ○ / ○		
The position of Internal liquid surface (Low_With no need for heating)	●		
Junction box material (Aluminium alloy/316SS)	– / –	○ / ●	● / ○
Switch type (DPDT/2*SPDT)	– / –	○ / ●	○ / ●
Switch rating (DC24V 3A/DC24V 5A)	– / –	● / ○	● / –
Electrical connection size (M20×1.5(F)/1/2″NPT(F))	– / –	● / ○	● / –
Retriever (Two full thread stud/ special tool)	● / ○		
Insert depth adjustment range (Customers can customize the range to meet any adjustment size)	○		

Corresponding relations between trigger and Insert depth (In pipe)

Trigger type	Bi–directional
Insert depth (In pipe)	21mm

6) Removable Pig Signaller – With Ball Valve



Basic Feature or Parameter

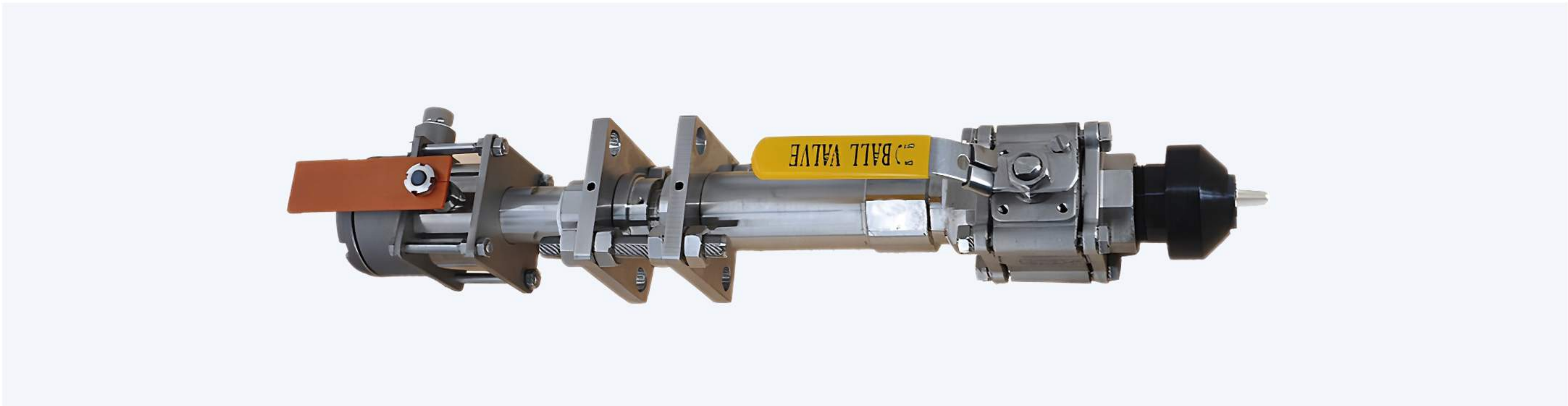
	B	C	D
Type	Intrusive		
Indicator feature	Manual reset flag	Manual reset flag combined with electrical signals	Date and time display combined with electrical signals
Installing type	2"Flange As per ASME B16.5 (CLASS150–1500)		
Plug body length _Correspond to total stand off	Meet the actual needs		
Operating temperature	–20~120℃/Meet customer requirements		
NACE MR 0175	Yes		
Ingress protection	IP66		
Explosion–proof class		Exd II BT4	Exd II BT4
Include isolation valve	Yes		
With bypass valve	No		
With bleed valve	Yes		
Remove under pressure	Yes (The whole machine comes with a simple retriever_ two whole threaded studs)		

Trigger type (B–bi–directional)	●		
Internal part material (316L SS/DSS/INCONEL)	● / ○ / ○		
Flange/Body material (PTFE Coated A105N/304SS/316LSS/DSS/INCONEL/As per MR)	● / ○ / ○ / ○ / ○ / ○		
The position of Internal liquid surface (High_Need to heating/Low_With no need for heating)	– / ●		
Junction box material (Aluminium alloy/316SS)	– / –	○ / ●	● / –
Switch type (DPDT/2*SPDT)	– / –	○ / ●	○ / ●
Switch rating (DC24V 3A/DC24V 5A)	– / –	● / ○	● / –
Electrical connection size (M20×1.5(F)/1/2"NPT(F))	– / –	● / ○	● / –
Retriever (Two full thread stud/ special tool)	● / ○		
Insert depth adjustment range (Customers can customize the range to meet any adjustment size)	●		

Corresponding relations between trigger and Insert depth (In pipe)

Trigger type	Bi–directional
Insert depth (In pipe)	21mm

7) Removable Pig Signaller – With Isolation Valve Weld Connection



Basic Feature or Parameter

	B	C	D
Type	Intrusive		
Indicator feature	Manual reset flag	Manual reset flag combined with electrical signals	Date and time display combined with electrical signals
Installing type	2” Nipple welded. Design pressure up to 3000 psi		
Plug body length _Correspond to total stand off	Meet the actual needs		
Operating temperature	–20~120℃/Meet customer requirements		
NACE MR 0175	Yes		
Ingress protection	IP66		
Explosion–proof class		Exd II BT4	Exd II BT4
Include isolation valve	Yes		
With bypass valve	Yes		
With bleed valve	Yes		
Remove under pressure	Yes (The whole machine comes with a simple retriever_ two whole threaded studs)		

Trigger type (Bi-directional)	●		
Internal part material (316L SS/DSS/INCONEL)	● / ○ / ○		
Nipple/Body material (A105N/304SS/316LSS/DSS/INCONEL /As per MR)	● / ○ / ○ / ○ / ○ / ○		
The position of Internal liquid surface (High_Need to heating/Low_With no need for heating)	– / ●		
Junction box material (Aluminium alloy/316SS)	– / –	○ / ●	● / ○
Switch type (DPDT/2*SPDT)	– / –	○ / ●	○ / ●
Switch rating (DC24V 3A/DC24V 5A)	– / –	● / ○	● / –
Electrical connection size (M20×1.5(F)/1/2"NPT(F))	– / –	● / ○	● / –
Retriever (Two full thread stud/ special tool)	● / ○		
Insert depth adjustment range (Customers can customize the range to meet any adjustment size)	●		

Corresponding relations between trigger and Insert depth (In pipe)

Trigger type	Bi-directional
Insert depth (In pipe)	21mm

8) Removable Pig Signaller – With DBB Valve



Basic Feature or Parameter

	B	C	D
Type	Intrusive		
Indicator feature	Manual reset flag	Manual reset flag combined with electrical signals	Date and time display combined with electrical signals
Installing type	2"Flange/2"Nipple welded. As per ASME B16.5 (CLASS150–1500)		
Plug body length _Correspond to total stand off	Meet the actual needs		
Operating temperature	–20~120℃/Meet customer requirements		
NACE MR 0175	Yes		
Ingress protection	IP66		
Explosion–proof class		Exd II BT4	Exd II BT4
Include DBB valve	Yes		
Remove under pressure	Yes (The whole machine comes with a simple retriever_ two whole threaded studs)		

Trigger type (B–bi–directional)	●		
Internal part material (316L SS/DSS/INCONEL)	● / ○ / ○		
Flange/Body material (PTFE Coated A105N/304SS/316LSS/DSS/INCONEL/As per MR)	● / ○ / ○ / ○ / ○ / ○		
The position of Internal liquid surface (High_Need to heating/Low_With no need for heating)	– / ●		
Junction box material (Aluminium alloy/316SS)	– / –	○ / ●	● / –
Switch type (DPDT/2*SPDT)	– / –	○ / ●	○ / ●
Switch rating (DC24V 3A/DC24V 5A)	– / –	● / ○	● / –
Electrical connection size (M20×1.5(F)/1/2"NPT(F))	– / –	● / ○	● / –
Retriever (Two full thread stud/ special tool)	● / ○		
Insert depth adjustment range (Customers can customize the range to meet any adjustment size)	●		

Corresponding relations between trigger and Insert depth (In pipe)

Trigger type	Bi–directional
Insert depth (In pipe)	21mm

9) Non-intrusive Pig Signaller

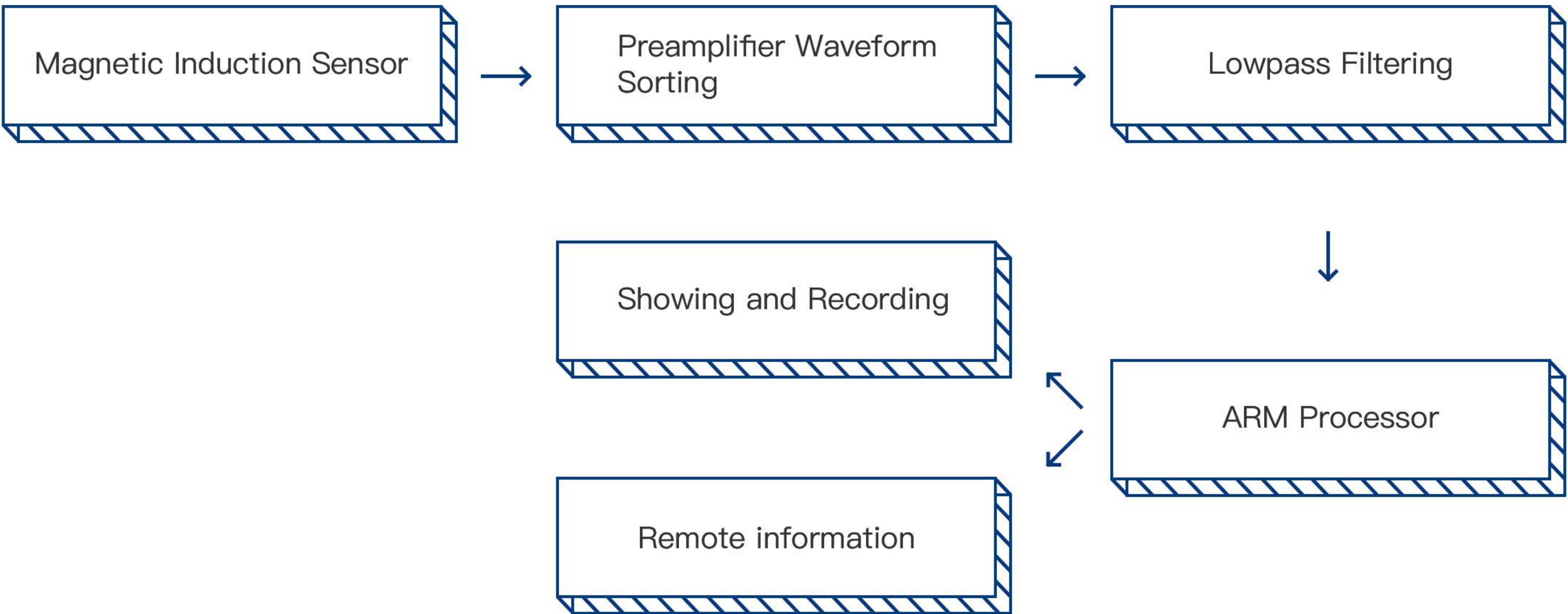
Product Information

The magnetic explosion-proof passing indicator is composed of explosion-proof remote transmission display mechanism TZS (LCD has heating function, recording passing time, storage memory 99 times, remote transmission, explosion-proof mark Exd IICT 6 GB, Protection Grade IP65), sensing mechanism YY-FCT, removable clamping mechanism, connecting wire and extension rod (generally used for buried pipeline if necessary).

The core sensing mechanism of the magnetic explosion-proof pass through indicator is composed of a reverse magneto resistance circuit, a balance amplification circuit, a low-pass filter circuit, a trigger circuit, a CPU, and a supporting remote switch circuit, a display circuit and a reset circuit.



Product Diagram



■ Technical Specification

No	Item	Specification
1	Operating Temperature	−39.8℃ / 80℃
2	Operating Humidity	41%~83%
3	Direction	Bi-directional
4	Sensor Type	Magnetic Induction
5	Signal Switch Type	SPDT
6	Passing time	±2s
7	Cleaning Pig Speed Range	0.2–10M/s
8	Switch Capacity	2A
9	Reset Type	Auto Reset
10	Cable Joint Type	M20*1.5、1/2NPT F
11	Explosion-Proof	Exd IICT6 Gb
12	IP Grade	IP65



04

CORROSION COUPON




Introduction

EMT–CIPA Corrosion Coupons are used to monitor the corrosion rates of sample (coupon) in the pipe or container. By observing the mils–per–year corrosion rate of an exposed coupon, valuable information can be provided regarding the material’s life expectancy. Sampling & Injection Systems are used to get medium sample from pipe or inject the chemicals into the pipe.

1) Corrosion Coupon

Corrosion coupons are a tool for providing a quantitative estimation of corrosion rates occurring in an operating system.

Corrosion Coupons are usually made of the same material as the pipeline. EMT can manufacture 3 types of corrosion coupons:

			
Name	Strip Coupon	Multihole Strip Coupon	Disc Coupon
Applications	Commonly–used coupon supplied for most evaluations.	Used with low pressure access equipment or through narrow ports that a standard 3/4” wide coupon cannot pass.	These circular coupons are used in stacked multiple disc monitoring applications.
Size	3” x 3/4” x 1/16” (76.2mm x 19.0mm x 3.2mm) With 2 mounting holes.	3” x 1/2” x 1/16” (76.2mm x 19.0mm x 3.2mm) With 2 mounting holes.	Φ1.25” (31.8mm) Thickness 1/16” (3.2mm) With 1 mounting hole.

2) Corrosion Coupon Holder



Disc Corrosion
Coupon Holder



Multiple Disc Corrosion
Coupon Holder



Strip Corrosion
Coupon Holder



Ladder Strip Corrosion
Coupon Holder

3) Corrosion Monitoring

			
Name	EMT-CIPA Welding Connection Corrosion Monitoring	EMT-CIPA Flange Connection Corrosion Monitoring	EMT-RCC Retractable Corrosion Monitoring
Connection type	2" Welded	2" ANSI Flange	2" Welded / 2" ANSI Flange
Design Temperature	-20°C ~ 120°C	-20°C ~ 120°C	-20°C ~ 120°C
Design Pressure	MAX. 2000PSI	150LB, 300LB, 600LB, 900LB, 1500LB, 2500LB	MAX. 2000PSI

Model and Parameter Table

Model											
CC	Corrosion Coupons										
	–Code	Plug Body Assembly									
	Pxxx	Type		Material		Sealing Material					
		0	No Request	0	CS	0	No Request				
		1	Hollow Plug Body	1	316SS	1	Viton O–Ring / PTFE Primary Packing				
		2	Solid Plug Body	2	316LSS	2	HNBR				
				3	DUPLEX SS						
				4	INCONEL						
		Type of Coupon Holder									
		SR	Fixed Coupon Holder for assembling rectangular coupon								
		AR	Adjustable Coupon Holder for assembling rectangular coupon								
		LR	Ladder Coupon Holder for assembling rectangular coupon								
		SC	Fixed Coupon Holder for assembling circular coupon								
		AC	Adjustable Coupon Holder for assembling circular coupon								
			–Pipe Size								
		X	Pipe Size in inch								
			– Coupon Size								
			AxBxC	Coupon Size in inch or mm							
				– Coupon Material							
				X	Grade						
					–Finishing of Coupon						
					0	Mill					
					1	Glass Bead					
						– Isolation Gasket					
						0	No Gasket				
						1	Nylon Gasket				
						2	FTFE Gasket				

For Example: CC–P221–SR–6"–3"x1/2"x1/8"–MS1018–0–2 CC: Corrosion Coupons

P221:Solid Plug Body in 316LSS Viton O–Ring and PTFE Primary Packing

SR–6":Fixed Coupon Holder for assembling rectangular coupon and for 6" pipe

3"x1/2"x1/8": Coupon Size

MS1018: Coupon Material

0: Finishing of Coupon is Mill

2: Material of Isolation Gasket is PTFE

Access Fitting Body

Model	
EMT–CIPA	Access Fitting Body of Coupon, Injector, Probe assembly
	– The material of Access Fitting Body
	0 CS
	1 316SS
	2 316LSS
	3 DUPLEX SS
	The Type of Access Fitting Body
	B 2"Welded (suffix "pressure rating" can be added to B)
	2"ANSI Flange (suffix "pressure rating & sealing type" can be added to F)
	–Tee Size– pressure rating & sealing type if flanged end
	0 No Tee
	1 1/4"NPT(F)Tee
	2 1/2"NPT(F)Tee
	3 3/4"NPT(F)Tee
	4 1"NPT(F)Tee
	5 Hole for 1/4"SWN Flange
	6 Hole for 1/2"SWN Flange
	7 Hole for 3/4"SWN Flange
	8 Hole for 1"SWN Flange
	–Protective Cover Type/ Material
	0 No Protective Cover Material
	1 Without hole CS or 0
2 With hole SS or 1	
3 Bleed Valve DSS or 3	
4 Bleed Valve, & Pressure Gauge	

For Example: EMT-CIPA-0F600#RF-2-1/CS shows 2"ANSI 600#RF Flange Access Fitting Body in CS, 1/2"NPT(F)Tee, Protective Cover in CS without hole

0F600#RF: 0F_ Access Fitting Body is Flanged in CS , 600#RF _Size is 2"ANSI 600#RF

2: Tee size is 1/2NPT(F)

1: Protective cover type is without hole

/CS: Protective cove material in CS

Order Information for Model EMT–RCC

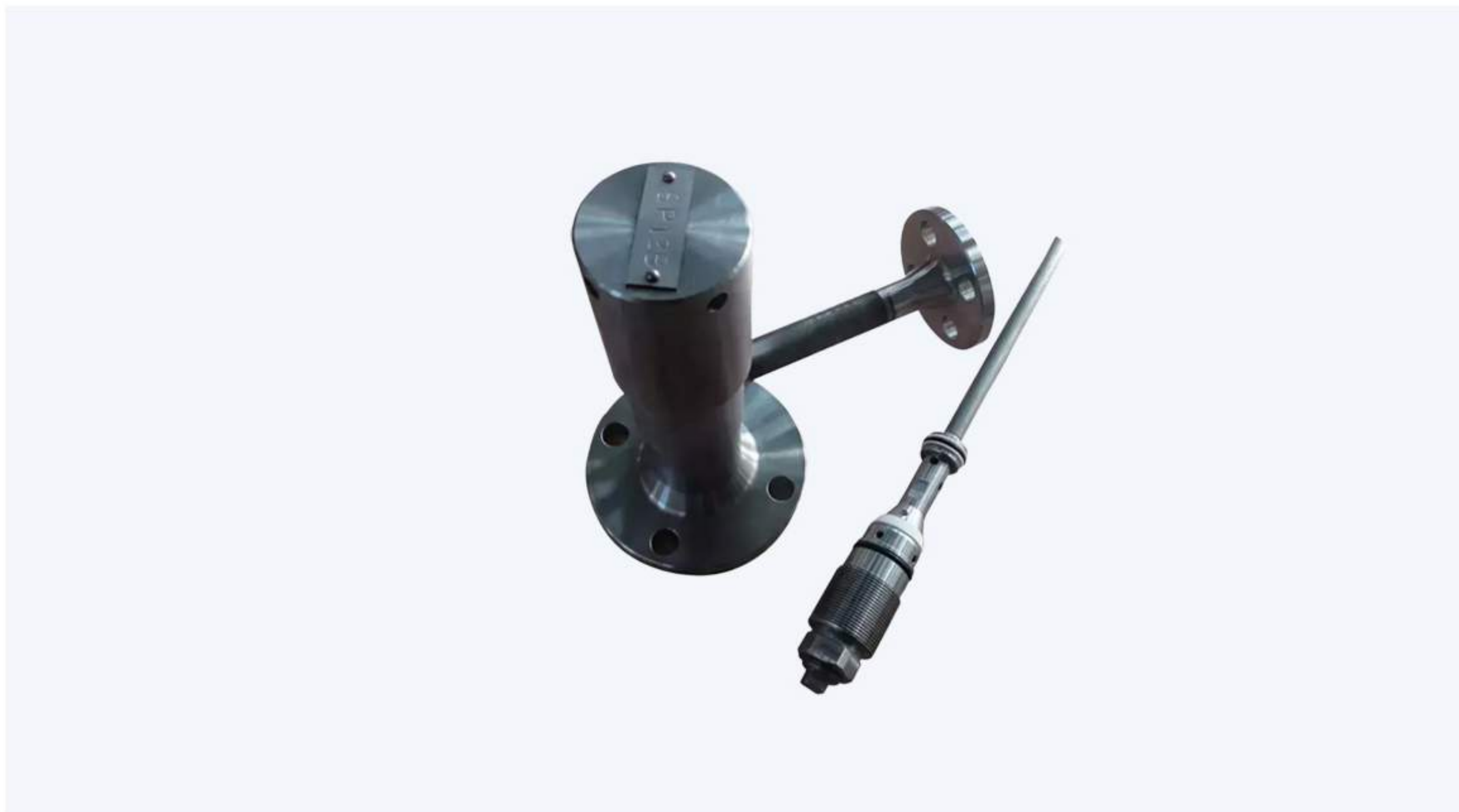
Model			
EMT–RCC	Complete Coupon Holder Assembly With 1” NPT Stuffing Box		
	– Order Length of coupon holder assembly		
	18	18 inches	
	24	24 inches	
	30	30 inches	
	36	36 inches	
	– Safety Clamp Option (recommended over 100 PSI and 150°F)		
	0	No Safety Clamp	
	1	With Safety Clamp	
	–Coupon Type		
	RS	Retractable Strip Coupon	
	–Coupon Material		
	X	MS1018 Carbon Steel	
		304 Stainless Steel	
		316 Stainless Steel	
	–Surface Finish		
	0	Grit Blast	
	1	Directional Sanded	
	–Insulators		
	0	Standard nylon insulators (250°F)	
	1	High temperature ceramic insulators (1475°F)	
	2	Teflon insulators (500°F)	
	3	No insulators	

For Example: EMT–RCC–18–1–RS–MS1018–0–0 shows the length of coupon holder assembly is 18 inches with safety clamp, the coupon material is MS1018, surface finish is grit blast, insulators are standard nylon.

05 CHEMICAL INJECTION QUILL

Introduction

The Chemical Injector and Sampler are the end devices of the chemical injection system or the piping medium sampling system. Periodically injecting chemical inhibitor into the pipeline is the most practical way for minimizing or controlling corrosion, which requires chemical injectors. EMT Injection System for easy, reliable access, inhibitors can be injected under operating pressure with safety.



Chemical Injector – Flange Connection



Chemical Injector–Welding Connection



Retractable Chemical
Injector Welding/Flange Connection

The mounting types are 2" flange, 2" flareweld access fitting, 1"NPT welded base.

Operation Temperature: $-20^{\circ}\text{C} \sim 150^{\circ}\text{C}$

Pressure Rating: 2500 Psi or as Flange Size. (Retractable chemical injectors are 2000 Psi).

Model and Parameter Table

Model																
SI	Sampling & Injection Assembly															
	–Code		Plug													
	Pxxx	Type		Material				Sealing Material								
		0	No Request		0	CS		0	No Request							
		1	Hollow Plug Body		1	316SS		1	Viton O–Ring / PTFE Primary Packing							
		2	Solid Plug Body		2	316LSS		2	HNBR							
					3	DSS										
					4	INCONEL										
		–Code		Injection Nut												
		Nxx	Connection Size				Material									
			0	No Request				0	CS							
			1	1/4"				1	316SS							
			2	1/2"				2	316LSS							
								3	DSS							
								4	INCONEL							
			–Code		Injection Tube											
			Sxxx–Lx"	Line size(x")			The most effective position for injection is generally at the center of the pipe									
							Connection Size–			Material		Nozzle				
				0	No Request		0	CS		0	No Request					
				1	1/4"		1	316SS		1	Open					
				2	1/2"		2	316LSS		2	Quill					
							3	DSS		3	Cap & Core					
							4	INCONEL								
					–Code		Nipple and Valve (or end Flange) of Tee									
			Txx		Connection Size			Material								
								0	No Request					0	CS	
								1	1/4" Nipple		a	1/4" Nipple and Valve		1	316SS	
	2							1/2" Nipple		b	1/2" Nipple and Valve		2	316LSS		
3	3/4" Nipple							c	3/4"Nipple and Valve		3	DSS				
4	1" Nipple							d	1"Nipple and Valve		4	INCONEL				
5	1/4" Flange							e	1/4"Nipple end Flange							
6	1/2" Flange		f	1/2"Nipple end Flange												

					7	3/4" Flange	g	3/4"Nipple end Flange		
					8	1" Flange	h	1"Nipple end Flange		

For Example: SI-P221-N12-S122-L4"-T22

SI: Sampling & Injection Assembly

P221: Solid Plug Body in 316LSS Viton O-Ring and PTFE Primary Packing

N12: Injection Nut Connection Size is 1/4"and Material is 316LSS

S122: Injection Tube Connection Size is 1/4" and Material is 316LSS. Type of nozzle is quill

L4": For 4"pipe.

T22: Nipple of Tee Connection Size is 1/2"

Nipple material is 316LSS

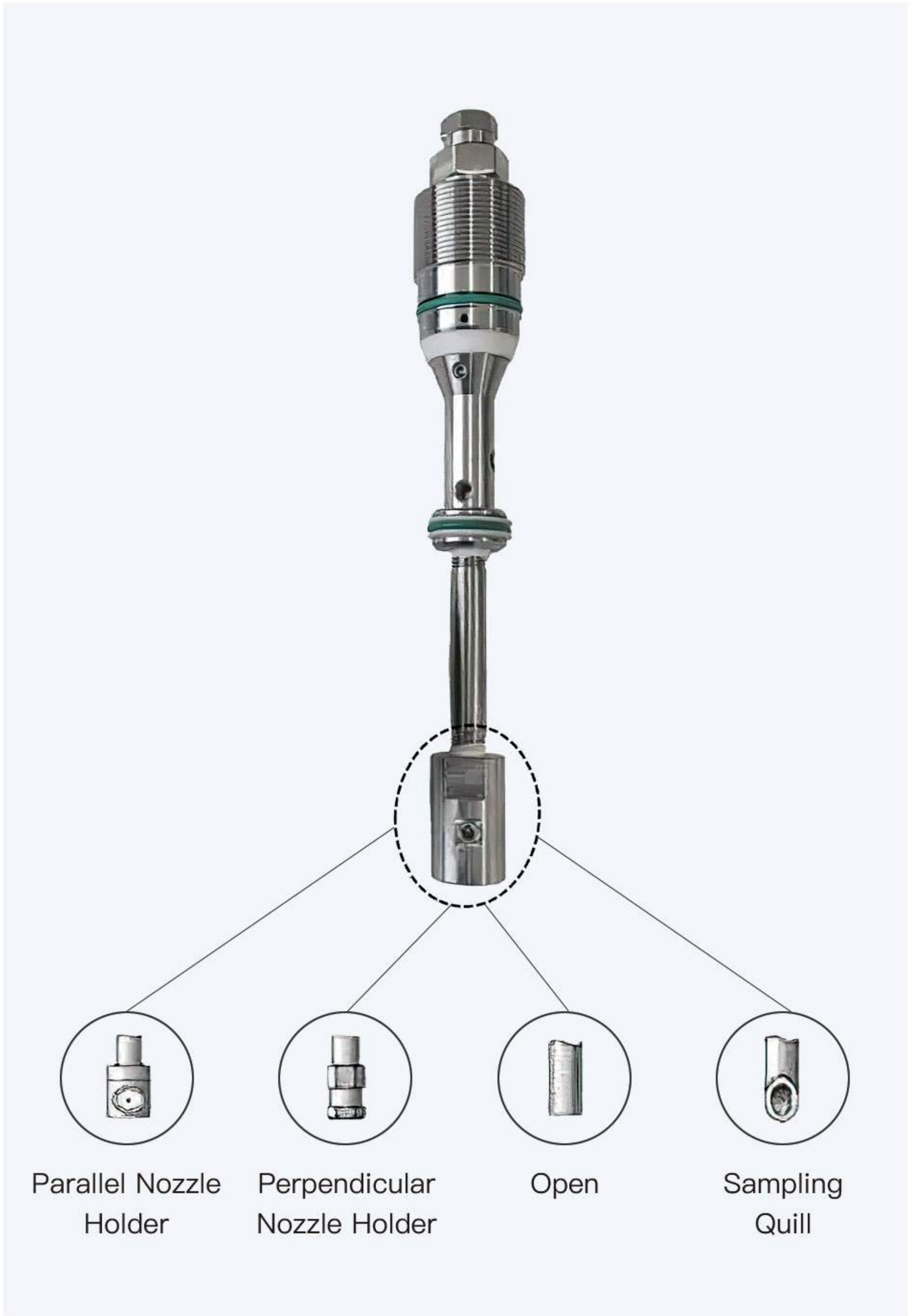
Type of nozzle



Sampling Quill



Parallel Nozzle Holder



Type of nozzle

Access Fitting Body

Model			
EMT-CIPA	Access Fitting Body		
	– The material of Access Fitting Body		
	0	CS	
	1	316SS	
	2	316LSS	
	3	DUPLEX SS	
		The Type of Access Fitting Body	
	B	2"Welded (suffix "pressure rating & pipe size" can be added to B)	
	F	2"ANSI Flange (suffix "pressure rating & sealing type" can be added to F)	
		–Tee Size– pressure rating & sealing type if flanged end	
	0	No Tee	
	1	1/4"Tee	
	2	1/2"Tee	
	3	3/4"Tee	
	4	1"Tee	
		–Protective Cover Type/ Material	
	0	No Protective Cover	Material
	1	Without hole	CS or 0
	2	With hole	SS or 1
	3	Bleed Valve	DSS or 3
	4	Bleed Valve, & Pressure Gauge	

For Example: SI-P221-N12-S122-L4"-T22

SI: Sampling & Injection Assembly

P221: Solid Plug Body in 316LSS Viton O-Ring and PTFE Primary Packing

N12: Injection Nut Connection Size is 1/4"and Material is 316LSS

S122: Injection Tube Connection Size is 1/4" and Material is 316LSS. Type of nozzle is quill

L4": For 4"pipe.

T22: Nipple of Tee Connection Size is 1/2"

Nipple material is 316LSS



06 CORROSION PROBE



Introduction

Resistance probe measurement (ER) is a detection method based on the measurement of metal loss. The metal loss is determined by the continuous change of the resistance value of the probe, so as to get its corrosion rate. This method can be used in almost all environments. It is not limited by the nature of the process. ER resistance corrosion probe's sensitive element forms include ring type, tube type, ring tube type, flat head type and strip type. The main material is 316 stainless steel, and the material of the sensitive element can be customized to suit different monitoring environments.

Features

- Can be used in any environmental conditions;
- Adapted to various standard installation interfaces on the market (ER probe, weightless coupon);
- Changes in site conditions do not affect the continuity of monitoring;
- Rate monitoring includes real-time pitting corrosion/general corrosion/pitting corrosion;
- The alarm of pitting corrosion can be displayed;
- The lifetime of the ER probe is indicated by the signal.

07 RETRIEVAL TOOL

Introduction

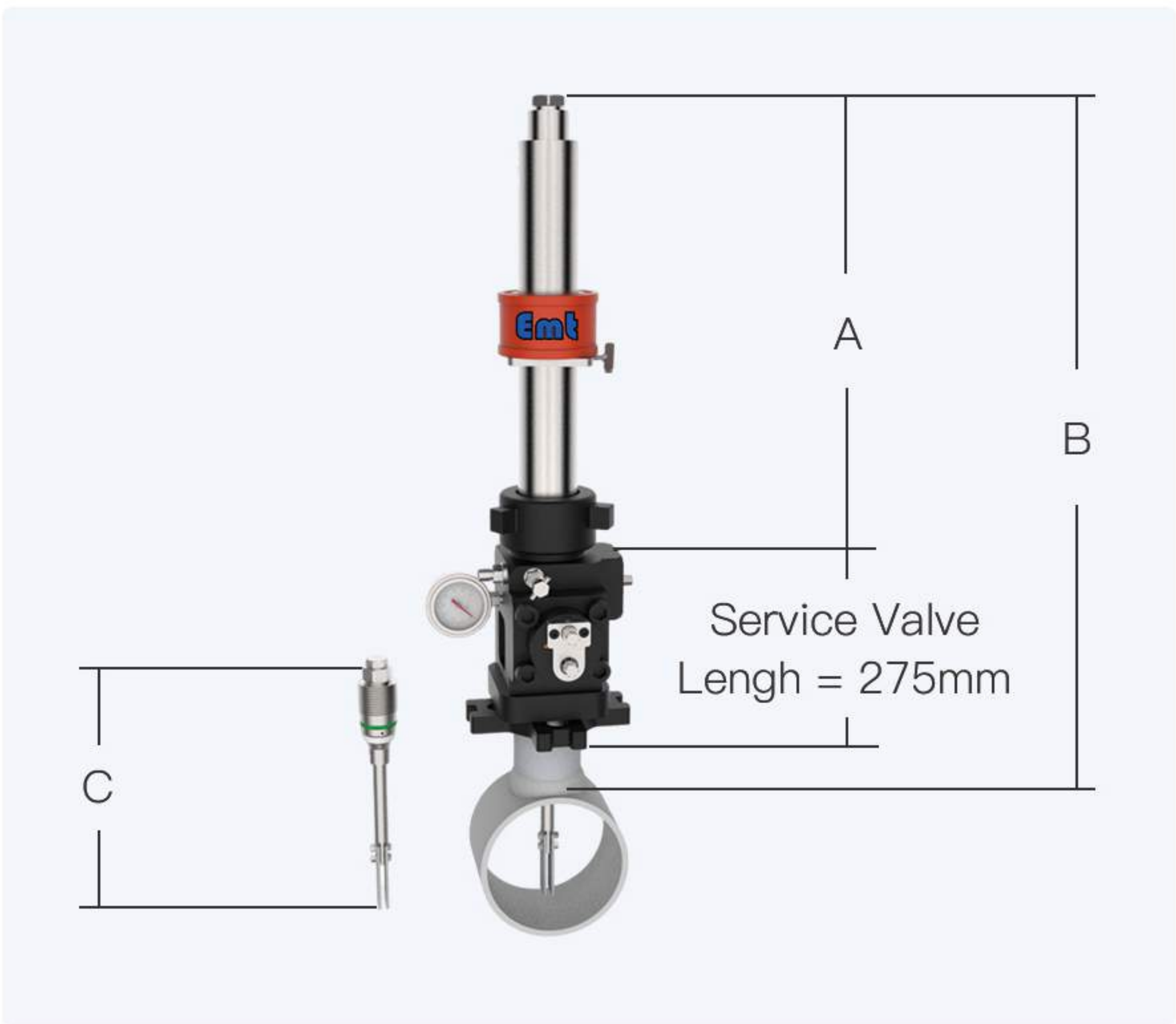
The EMT–WRTV retrievers and service valves are designed to insert and retrieval the target assembly that include conventional 2" corrosion monitoring assemblies and special plug assembly of EMT pig detector under pressure.

Related parameters

- Applicable pressure range: 2500 PSI (17.2 MPa) / 6000 PSI (41.3 MPa);
- Applicable temperature range: -20~120℃, -20~200℃

Advantages of EMT Retrieval Tool

- The rotation is completed by the reduction gear set. This makes it easy for operators to rotate.
- The main valve of its operating valve is a plate valve. It also has a safety lock against misuse.
- Only one person can complete all operations of disassembly and installation under pressure.
- It is small in size, light in weight and easy to carry.



Leter	Description	Maximum Pipeline Size		
		12"	24"	36"
A	Retriever – (mm)	710	1000	1300
B	Retriever and Service Valve – (mm)	985	1275	1575
C	Insert Depth – (mm)	460	750	1050
	Weight – (kgs)	25.4	27.6	30



08 QUICK OPENING CLOSURE

Introduction

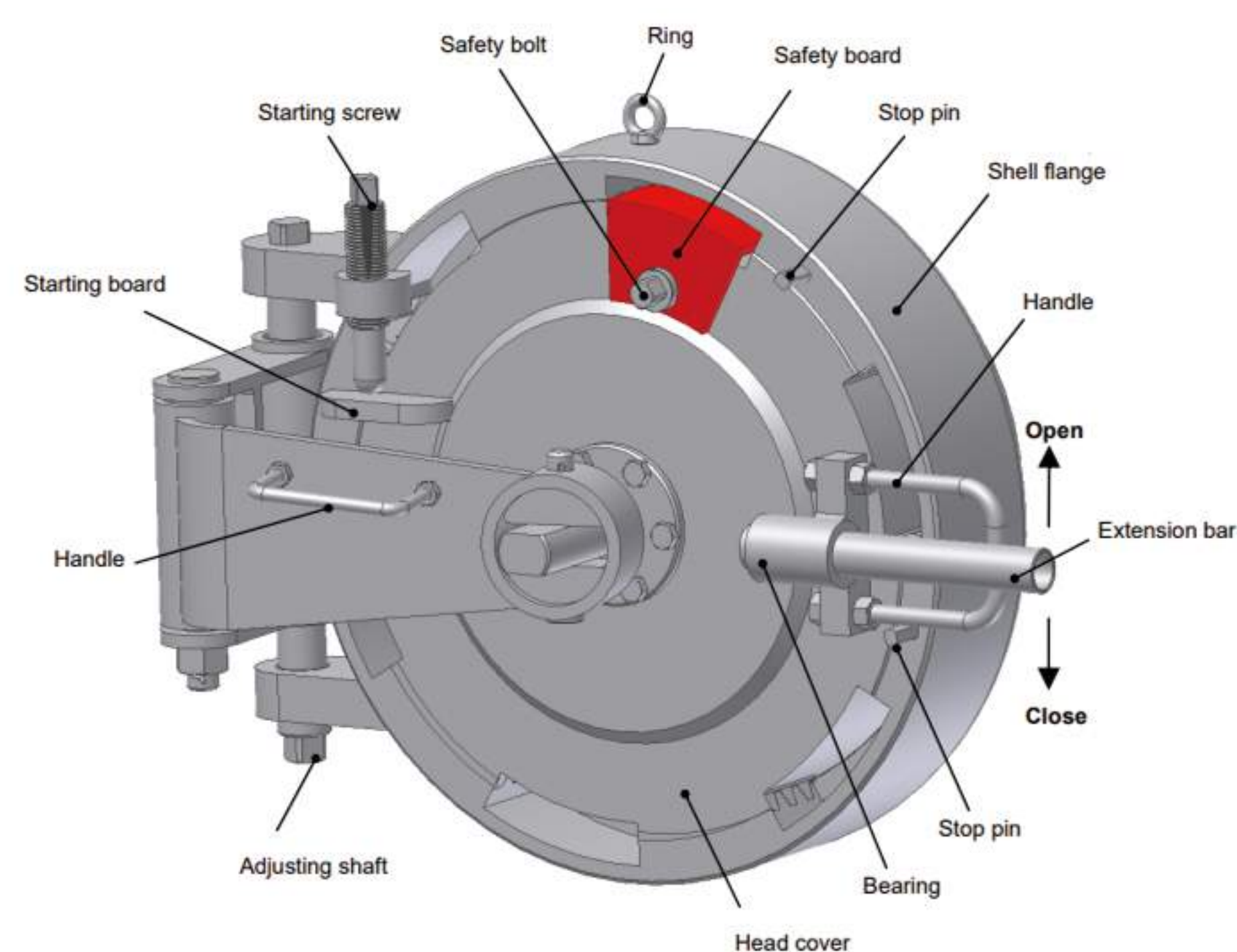
The quick opening closure is a mechanical device used on the opening of pipeline or pressure vessel, and can be opened and closed quickly. DN100~DN350 pipelines generally use bayonet type quick opening closure. Because it is easy to open, close, and operate. DN400~DN1200 pipelines are recommended to use lock-ring quick opening closure. Because it uses less force when opening and closing, it is easy to operate.



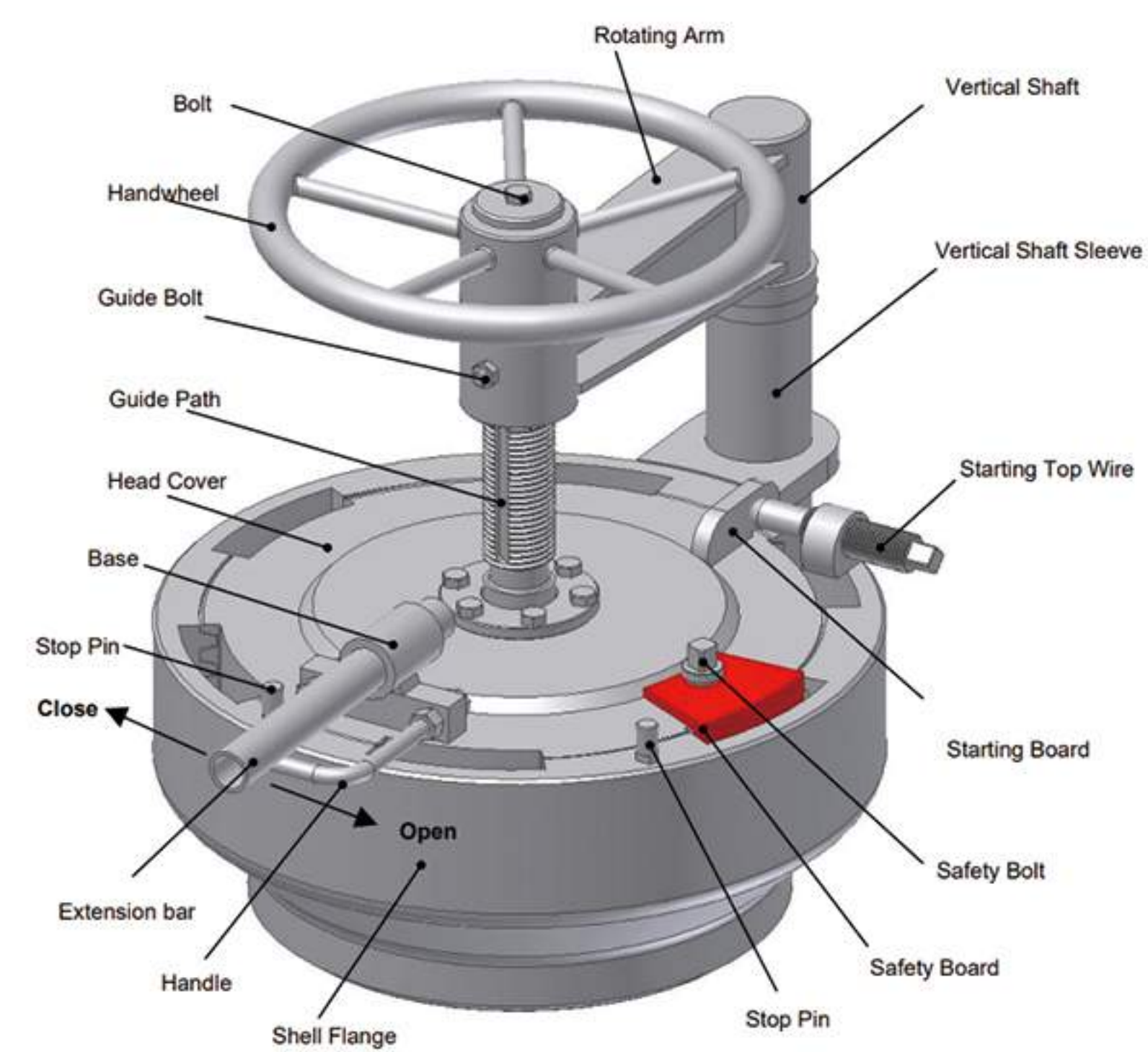
Technical indicators

- Nominal Diameter DN: $\leq 1800\text{mm}$
- Design pressure PN: $\leq 40\text{ MPa}$
- Working Medium: oil, gas, water
- Design Temperature: $-50^{\circ}\text{C} \sim 300^{\circ}\text{C}$
- Material: 16Mn, A350LF2, A105, SS304, SS316, F51, F53, F55, INCONEL625, HASTELLOY C
- Pipe Thickness: $6\text{mm} \sim 100\text{mm}$

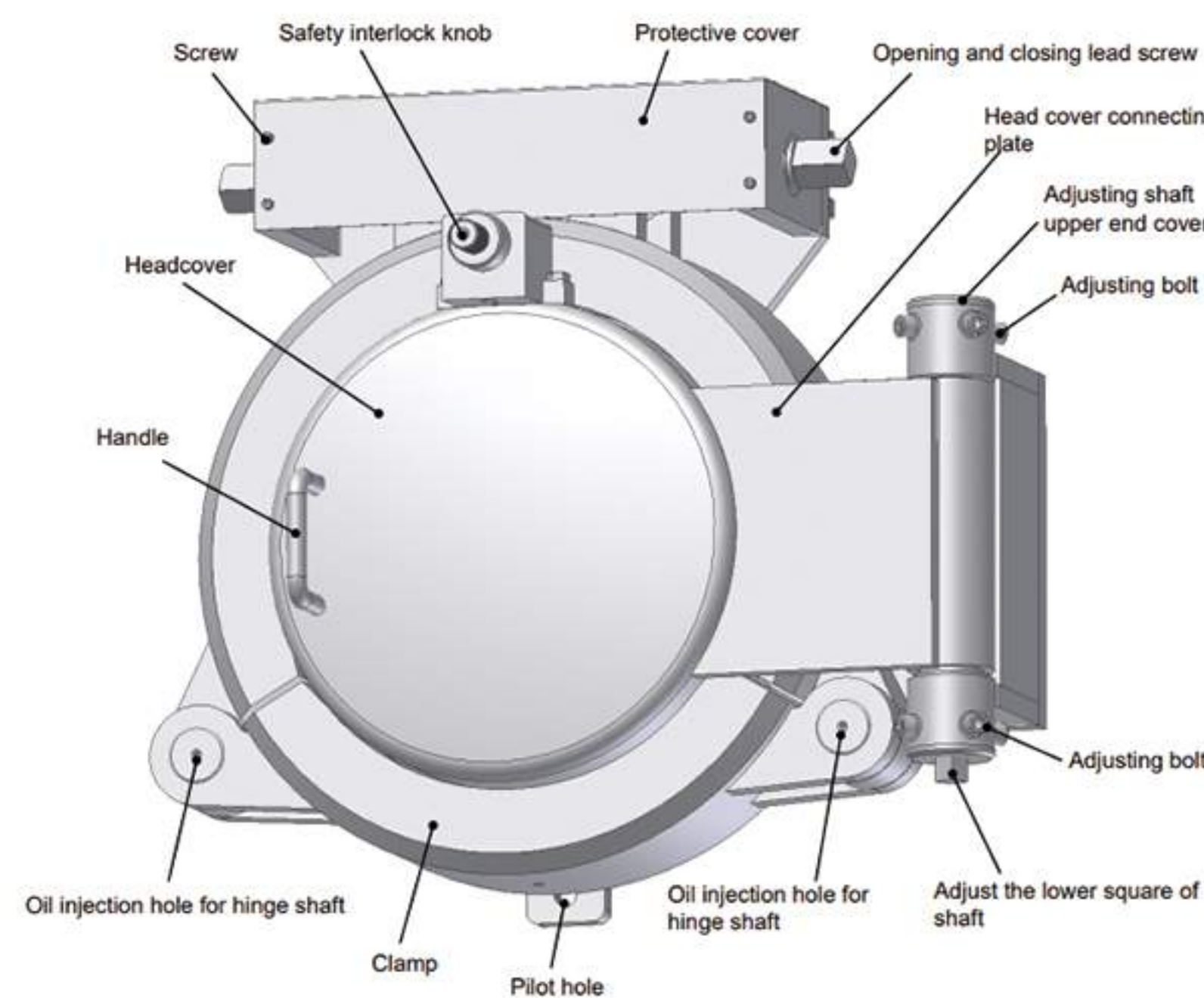
Structure Type(Refer to figure)



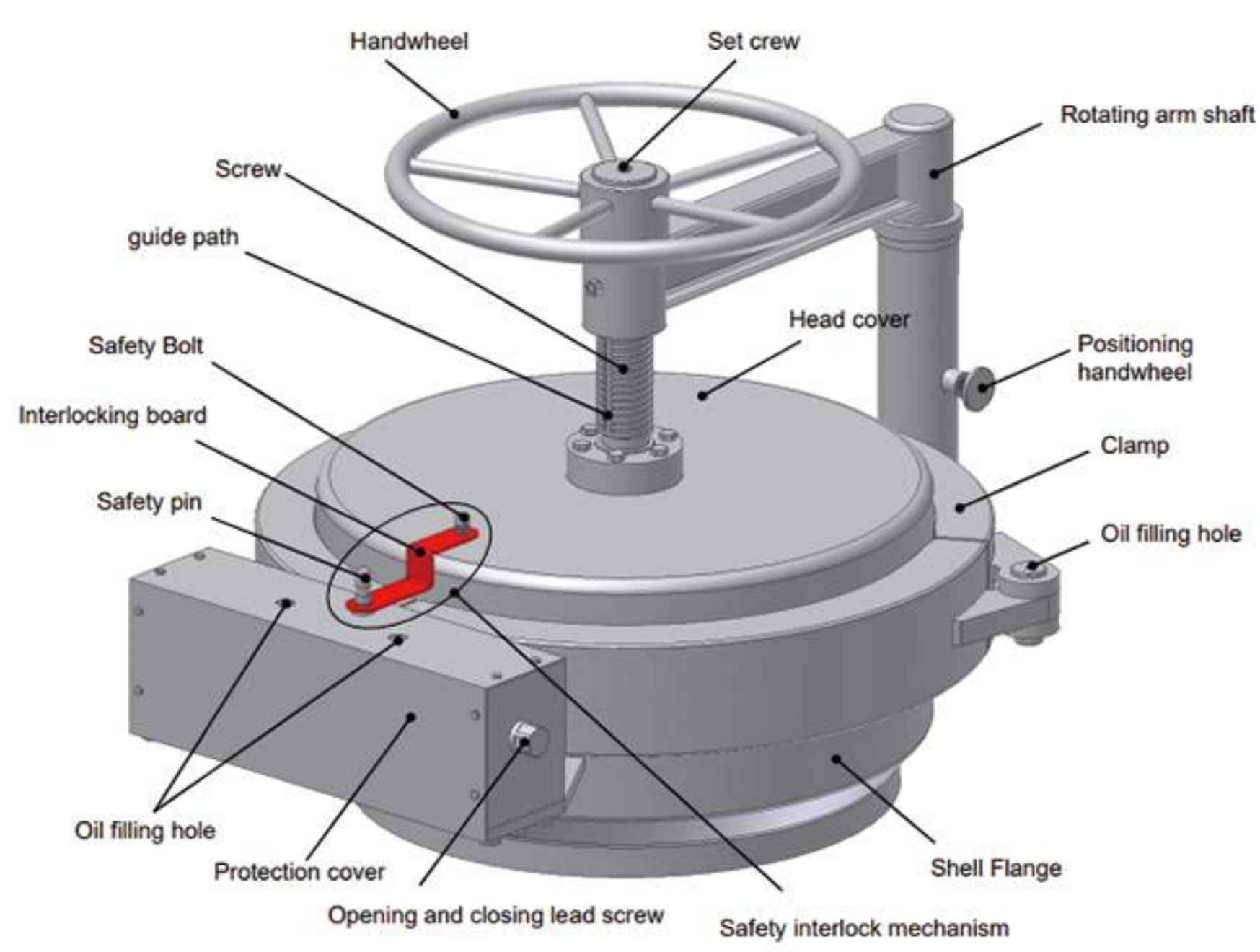
Bayonet Type Quick Opening Closure (Horizontal)



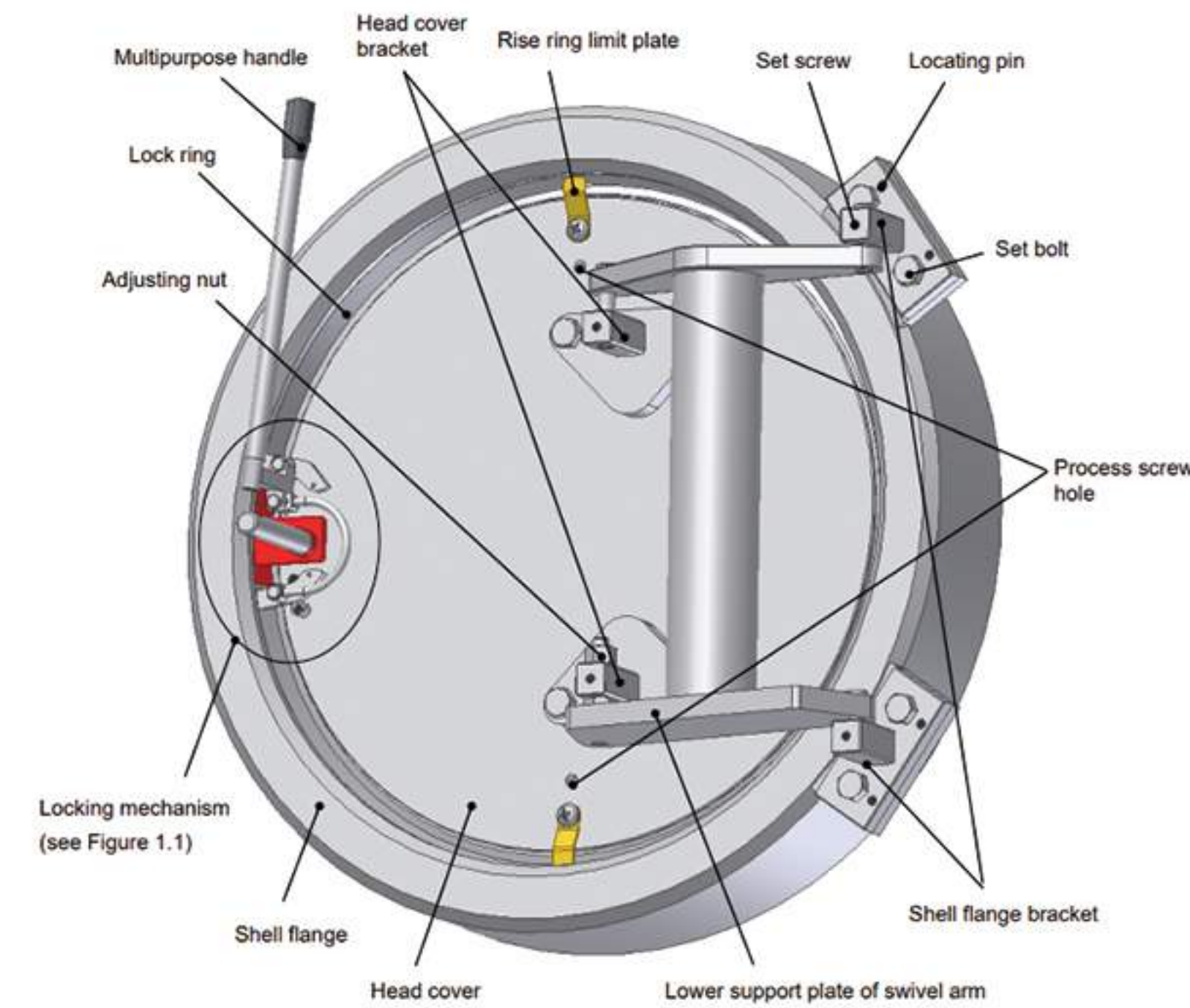
Bayonet Type Quick Opening Closure (Vertical)



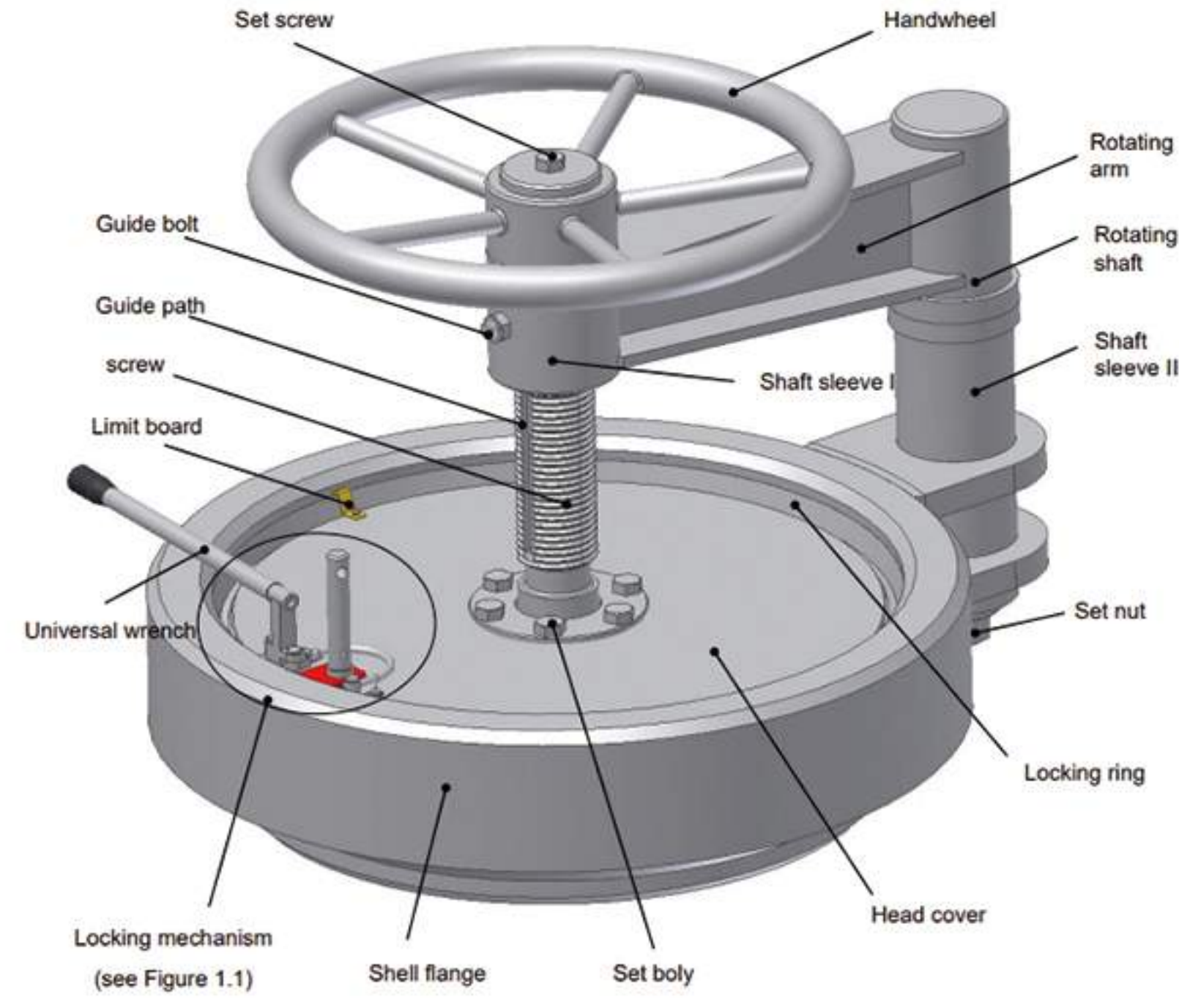
Clamp Type Quick Opening Closure (Horizontal)



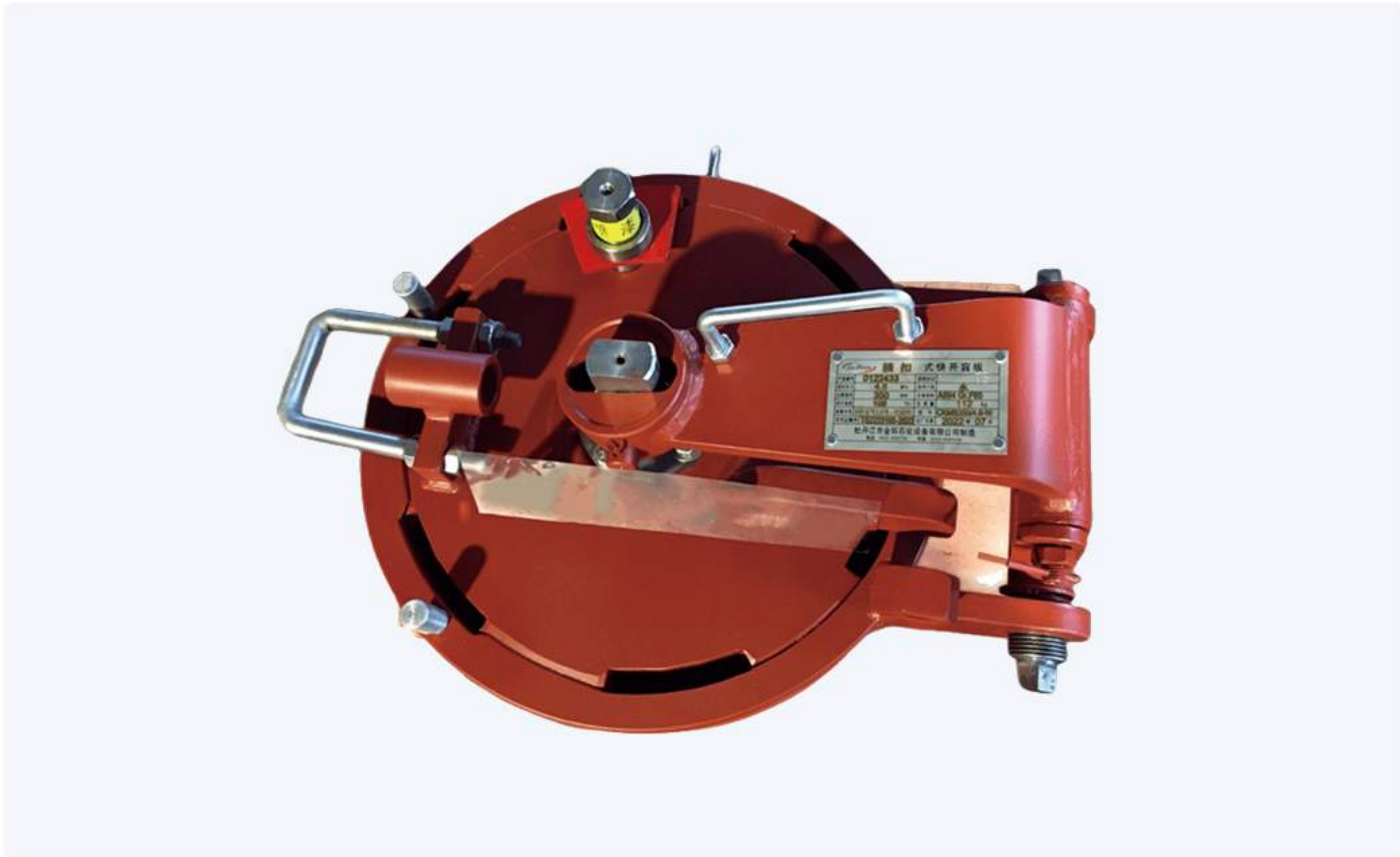
Clamp Type Quick Opening Closure (Vertical)



Lock Ring Quick Opening Closure (Horizontal)



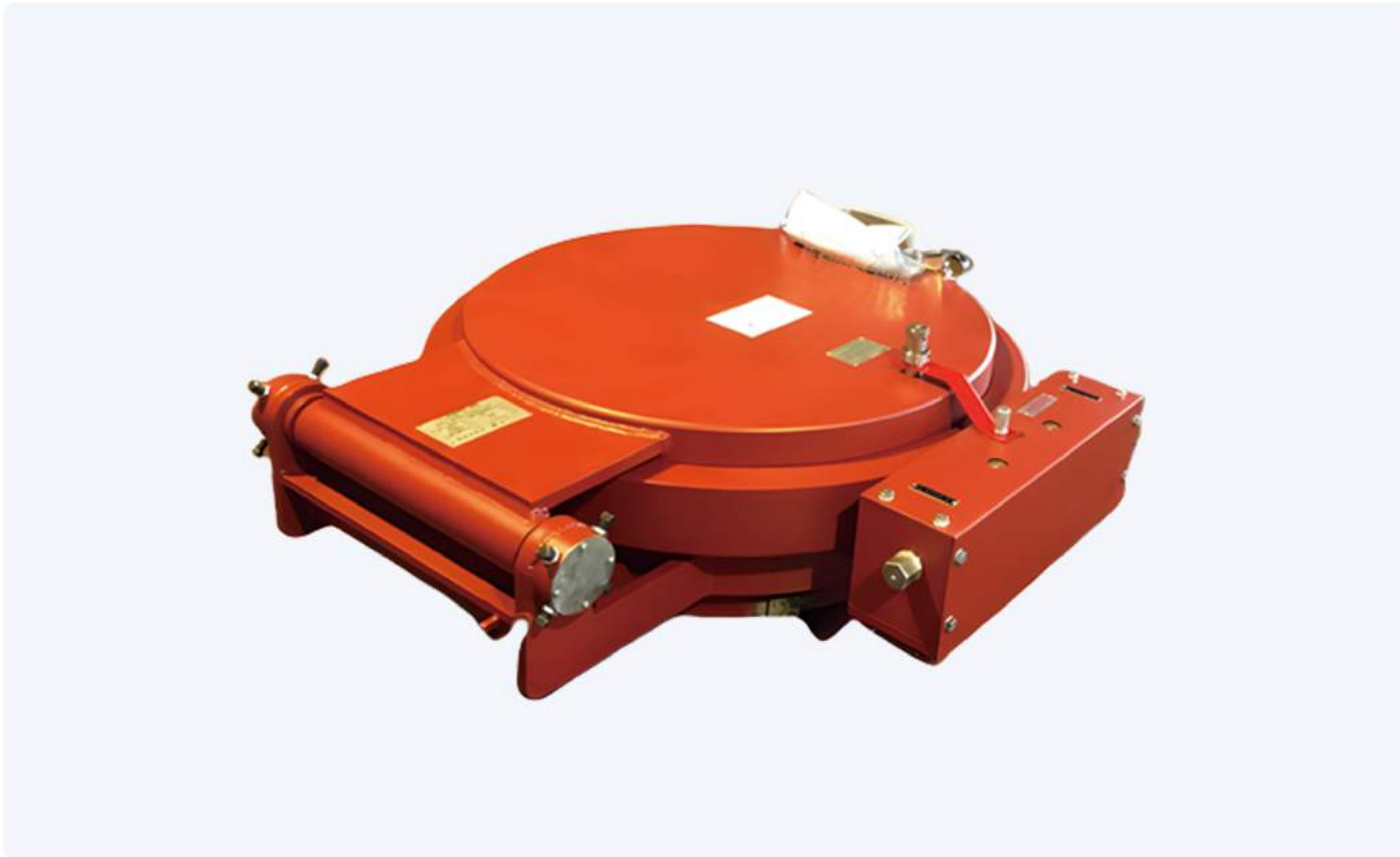
Lock Ring Quick Opening Closure (Vertical)



Bayonet Type Quick Opening Closure (Horizontal)



Bayonet Type Quick Opening Closure (Vertical)



Clamp Type Quick Opening Closure (Horizontal)



Clamp Type Quick Opening Closure (Vertical)



Lock Ring Quick Opening Closure (Horizontal)



Lock Ring Quick Opening Closure (Vertical)

09 PIG LAUNCHER AND RECEIVER

Introduction

The pig launcher and receiver is an important process equipment for sending and receiving pigging equipment during the pipeline cleaning operation. It uses the flow of the original medium in the pipeline as the driving force to push the pig in the pig launcher to run in the pipeline, so as to achieve the purpose of cleaning or checking the pipeline.

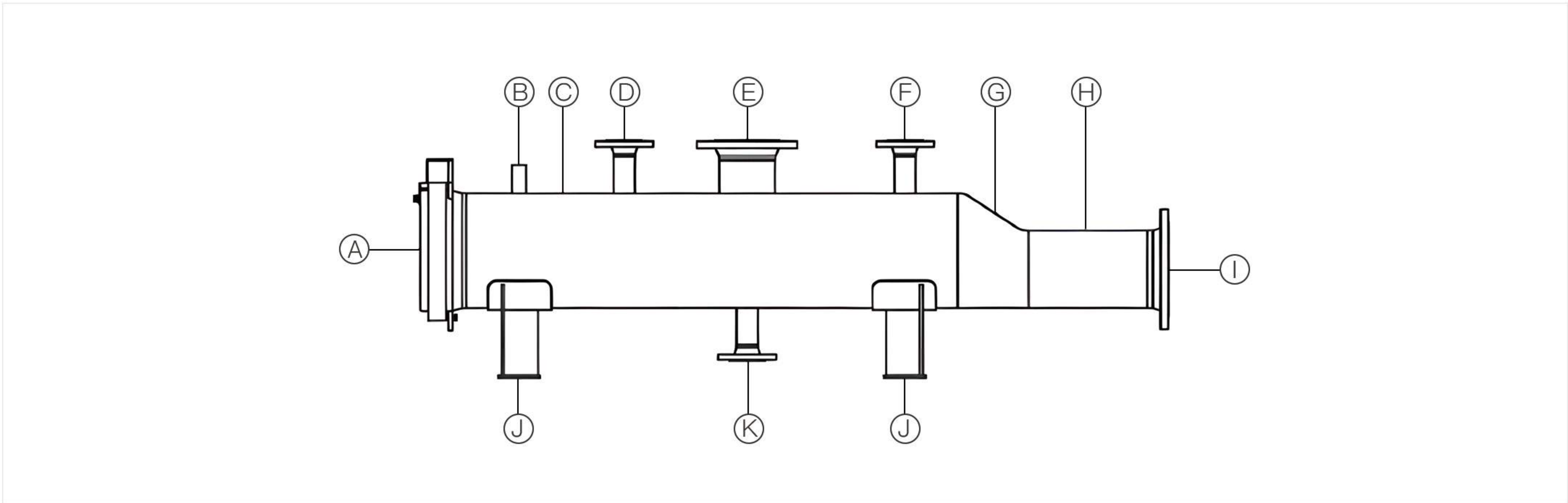


Technical parameter

- Design pressure: DN1.6—40.0Mpa.
- Test pressure: The water pressure is 1.5 times the design pressure, and the air tightness test is equivalent to the design pressure.
- Corrosion allowance: 2mm.
- Seismic Fortification Intensity: 7 degree.
- Applicable medium: crude oil, refined oil (gasoline, diesel), gas, water.



1) Pig Launcher Structure Drawing



Nominal Diameter DN (mm)	Pipe Diameter D (mm)	Size Parameters of Pig Launcher								
		L1	L2	L3	L4	L5	L6	L7	L8	A
150	114	760	140	200	100	180	100	280	100	560
200	159	800	152	200	100	210	100	300	100	600
200	168	800	152	200	100	210	100	300	100	600
250	219	860	178	200	100	280	100	300	100	660
300	273	960	200	200	100	340	100	320	100	760
350	325	1080	240	240	100	360	100	320	100	880
400	377	1200	280	240	100	400	100	320	100	1000
500	426	1300	300	300	120	430	120	320	120	1100
600	529	1420	320	300	120	480	120	340	120	1180
700	630	1550	340	300	120	540	120	340	120	1310
800	720	1680	360	300	120	580	120	340	120	1440
900	820	1800	380	300	120	640	120	340	120	1560

Explain

- A

Quick Opening Closure
- B

Pressure Gauge
- C

Major Barrel
- D

Utility Nozzle
- E

Inlet
- F

Vent
- G

Reducer
- H

Minor Barrel
- I

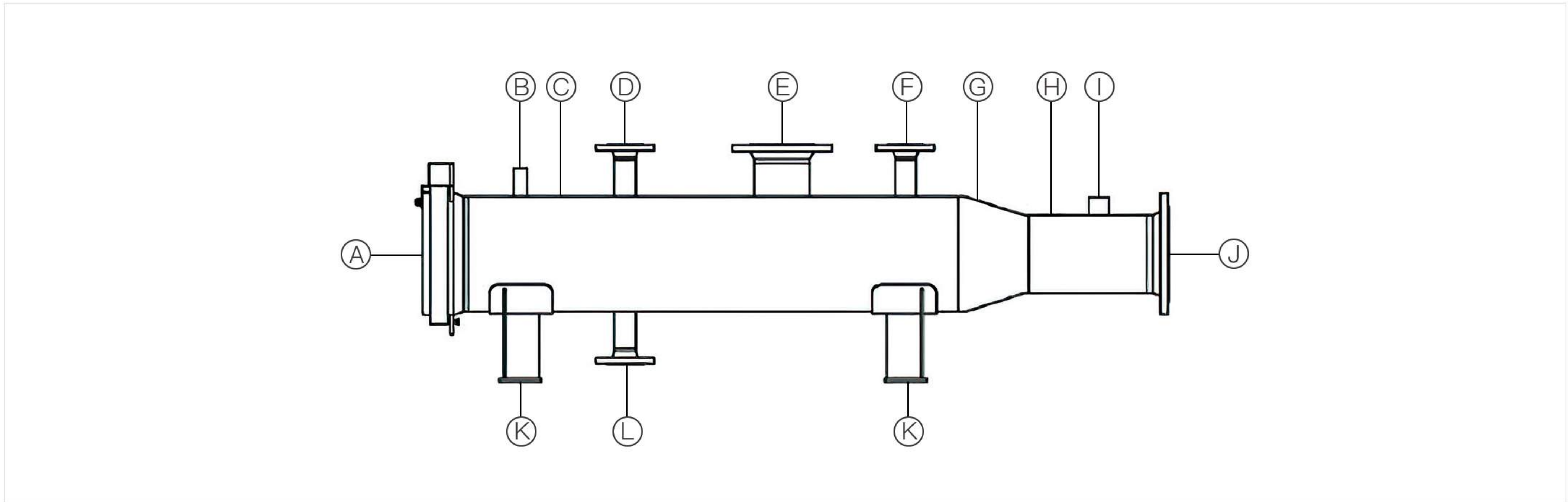
Pipeline Connection
- J

Support
- K

Drain

Specifications and Dimensions of Tube （Length 120mm）					Specifications of Support	
H	Barometer Connecting Tube	Fluid Inlet Tube	Air Relief Valve Connecting Tube	Contaminant Discharge Tube	Front Support	Rear Support
300	ZG1/2''	114	ZG3/4''	60	AZ-150	AZ-150
320	ZG1/2''	159	ZG3/4''	60	AZ-150	AZ-150
320	ZG1/2''	168	ZG3/4''	60	AZ-150	AZ-150
350	ZG1/2''	219	ZG3/4''	60	AZ-250	AZ-250
380	ZG1/2''	273	ZG3/4''	60	AZ-300	AZ-300
410	ZG1/2''	325	ZG3/4''	89	AZ-350	AZ-350
430	ZG1/2''	325	ZG3/4''	89	AZ-400	AZ-400
480	ZG1/2''	377	ZG3/4''	89	AZ-500	AZ-500
530	ZG1/2''	426	ZG3/4''	89	AZ-600	AZ-600
580	ZG1/2''	529	ZG3/4''	89	AZ-700	AZ-700
640	ZG1/2''	529	ZG3/4''	89	AZ-800	AZ-800
680	ZG1/2''	620	ZG3/4''	89	AZ-900	AZ-900

2) Pig Receiver Structure Drawing



Nominal Diameter DN (mm)	Pipe Diameter D (mm)	Size Parameters of Pig Receiver								
		L1	L2	L3	L4	L5	L6	L7	L8	A
150	114	760	140	200	100	180	100	460	100	900
200	159	800	152	200	100	210	100	500	100	952
200	168	800	152	200	100	210	100	500	100	952
250	219	860	178	200	100	280	100	560	100	1038
300	273	960	200	200	100	340	100	660	100	1160
350	325	1080	240	240	100	360	100	780	100	1340
400	377	1200	280	240	100	400	100	800	100	1500
500	426	1300	300	300	120	430	120	900	120	1630
600	529	1420	320	300	120	480	120	1020	120	1770
700	630	1550	340	300	120	540	120	1150	120	1920
800	720	1680	360	300	120	580	120	1280	120	2070
900	820	1800	380	300	120	640	120	1400	120	2210

Explain

- A

Quick Opening Closure
- B

Pressure Gauge
- C

Major Barrel
- D

Utility Nozzle
- E

Inlet
- F

Vent
- G

Reducer
- H

Minor Barrel
- I

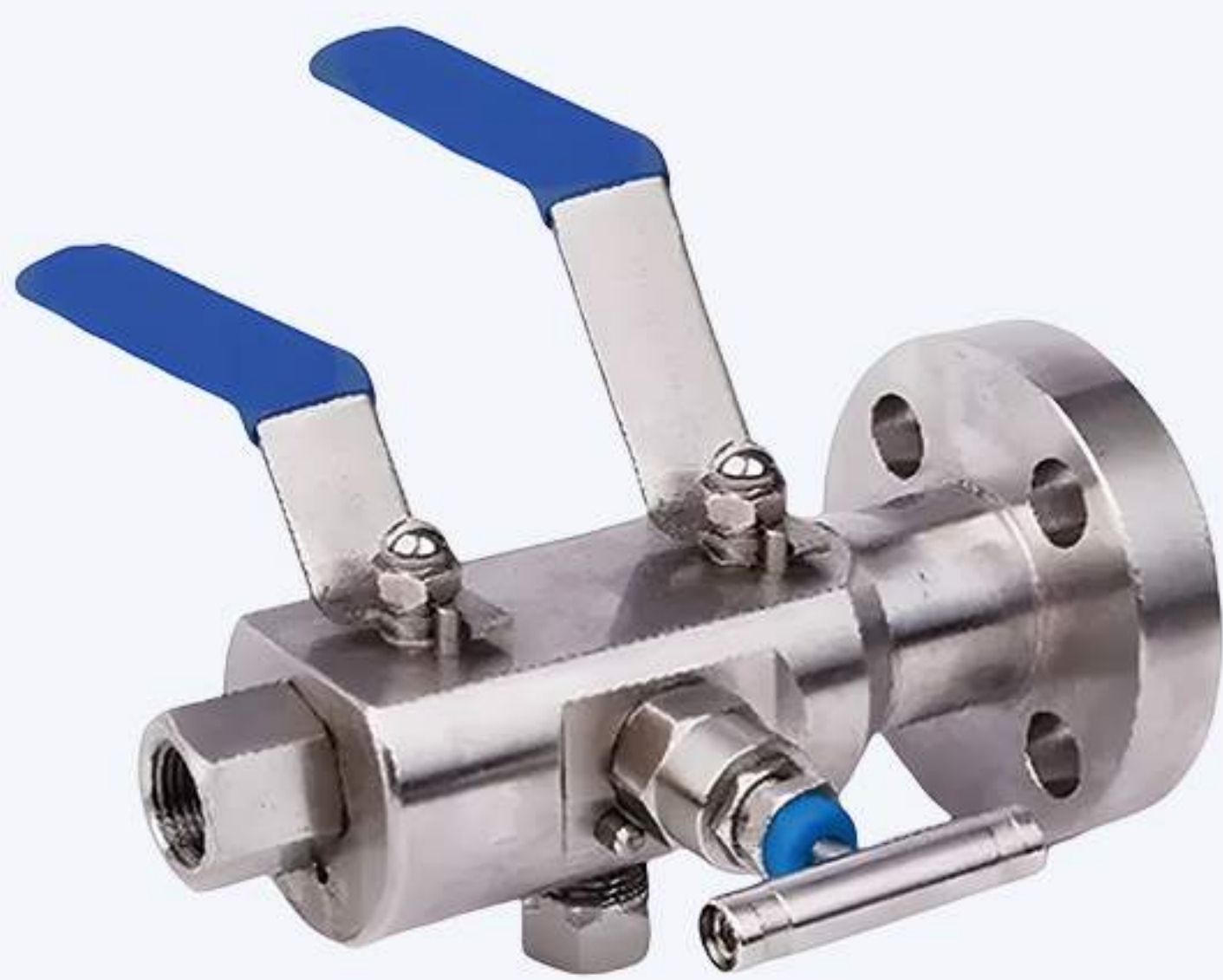
Indicator
- J

Pipeline Connection
- K

Support
- L

Drain

Specifications and Dimensions of Tube (Length 120mm)					Specifications of Support	
H	Barometer Connecting Tube	Fluid Outlet Tube	Air Relief Valve Connecting Tube	Contaminant Discharge Tube	Front Support	Rear Support
300	ZG1/2''	114	ZG3/4''	60	AZ-150	AZ-100
320	ZG1/2''	159	ZG3/4''	60	AZ-200	AZ-150
320	ZG1/2''	168	ZG3/4''	60	AZ-200	AZ-150
350	ZG1/2''	219	ZG3/4''	60	AZ-250	AZ-200
380	ZG1/2''	273	ZG3/4''	60	AZ-300	AZ-250
410	ZG1/2''	325	ZG3/4''	89	AZ-350	AZ-300
430	ZG1/2''	325	ZG3/4''	89	AZ-400	AZ-350
480	ZG1/2''	377	ZG3/4''	89	AZ-500	AZ-400
530	ZG1/2''	426	ZG3/4''	89	AZ-600	AZ-500
580	ZG1/2''	529	ZG3/4''	89	AZ-700	AZ-600
640	ZG1/2''	529	ZG3/4''	89	AZ-800	AZ-700
680	ZG1/2''	620	ZG3/4''	89	AZ-900	AZ-800



Introduction

DBB ball valve is a double block and double relief ball valve with two sealing passages. When it is in the closed position, the two sealing pairs can be kept sealed at the same time. The valve body in the middle cavity (between the two sealing pairs) has a port for releasing the pressure of the medium. It is divided into two series of welded valve body and three-piece structure, with double block and discharge functions, one valve body with two balls. The valve cavity between the two balls has an external drain valve (needle shut-off valve). Therefore, its sealing performance is reliable, and it is suitable for fields where multiple valves are connected in series and the sealing requirements are strict.

Parameters Table

Name	Double Block And Bleed DBB Valve
Material	A105/SS 304/SS 316/F51/F53/F55 or meet actual needs
Operating Temperature	54-640°C
Feature	1.Easy Operating
	2.High Accuracy Long Life
	3.High Efficiency Low cost
Standard	ASTM, ASME B16.5
Advantage	1. Improved safety , leak paths reduced by up to 60%
	2. Reduced costs , installation and component costs reduced by up to 70%
	3. Reduced susceptibility to problems caused by vibration



11 Monolithic Insulating Joints



Technical performance of new type monolithic insulating joints

- Operating pressure: design pressure 1.6 ~ 42MPa;
- Operating temperature: design temperature $-40 \sim +300$ C;
- Resistance: greater than 10M at 2.5KV DC;
- Insulation strength: 30s no breakdown at 50Hz 3KV,AC;
- The performance of the new type ZJ3 insulation joint has reached the advanced level of the international similar products.

Features of ZJ3 series products:

Our products are ranging from DN15 to DN3000mm, pressure rating from PN1.6 to PN42MPa. And materials including carbon steel and low alloy steel, stainless steel and duplex stainless steel, nonferrous metal and metal composite materials, three series and more than 30 varieties. The working temperature is -40°C to $+240^{\circ}\text{C}$, and suitable for various types of oil, gas and chemical medium. It can be buried underground, overhead or underwater for use, and permanently maintenance-free. Products can meet all the standards and requirements related to insulating joint in and out of China.

Online dimension and weight

PN25						PN40				
Size	AxS	B	C	D	N.W (Kg)	AxS	B	C	D	N.W (Kg)
DN25	Φ34*4	58	37	250	1.5	Φ34*4	65	48	250	2.1
DN40	Φ48*4	82	55	300	2.5	Φ48*4	82	65	300	3.5
DN50	Φ60*4	88	55	350	4.2	Φ60*4	98	66	350	5.2
DN65	Φ76*5	112	61	350	5.5	Φ76*5	112	68	350	6.5
DN80	Φ89*5	127	65	400	6.5	Φ89*5	127	72	400	7.5
DN100	Φ114*5	170	68	400	12.2	Φ114*5	170	72	400	13.2
DN125	Φ140*6	190	85	500	17	Φ140*6	190	92	500	17
DN150	Φ168*7	220	90	500	23.3	Φ168*7	220	95	500	24.3
DN200	Φ219*7	272	110	600	34	Φ219*7	272	115	600	35
DN250	Φ273*8	340	124	800	70	Φ273*8	340	134	800	72
DN300	Φ325*8	425	150	800	90	Φ325*10	425	160	800	106
DN350	Φ356*8	473	170	900	125	Φ356*12	473	185	900	140
DN400	Φ406*8	480	190	900	220	Φ406*10	480	215	900	246
DN450	Φ457*8	520	190	900	235	Φ457*10	520	215	900	255
DN500	Φ508*10	620	205	1000	335	Φ508*12	620	225	1000	358
DN600	Φ610*10	695	250	1000	365	Φ610*12	695	275	1000	450
DN700	Φ711*10	830	280	1200	545	Φ711*12	830	310	1200	610
DN800	Φ813*12	930	315	1300	706	Φ813*12	930	365	1300	795
DN900	Φ914*12	1060	330	1400	950	Φ914*12	1060	370	1400	990

PN64						PN100				
Size	AxS	B	C	D	N.W (Kg)	AxS	B	C	D	N.W (Kg)
DN25	Φ34*4	80	65	250	4.0	Φ33.4*3.91	90	90	250	5.3
DN40	Φ48*4	95	90	350	5.0	Φ48.3*3.91	100	100	350	6.5
DN50	Φ57*4	108	90	350	6.5	Φ60.3*3.91	115	105	350	8.5
DN65	Φ76*5	125	95	350	8.8	Φ76.1*5.49	135	120	350	13.5
DN80	Φ89*5	140	95	400	10.5	Φ88.9*5.49	155	125	500	18.7
DN100	Φ114*5	165	115	500	18	Φ114.3*6.02	190	135	500	28
DN125	Φ140*6	196	120	600	26	Φ141.3*6.55	220	150	600	41
DN150	Φ168*7	240	135	600	42	Φ168.3*7.11	255	170	600	57
DN200	Φ219*8	278	158	600	51	Φ219.1*8.18	320	187	600	90
DN250	Φ273*10	350	186	800	98	Φ273.1*10	372	215	800	138
DN300	Φ325*10	395	203	800	152	Φ323.9*10	440	235	800	193
DN350	Φ355.6*11.7	484	205	1000	213	Φ355.6*11.7	480	255	1000	272
DN400	Φ406.4*12.7	490	244	1000	220	Φ406.4*12.7	550	280	1000	365
DN450	Φ457*12.7	570	265	1000	315	Φ457.2*12.7	600	300	1000	448
DN500	Φ508*12.7	630	275	1200	421	Φ508*12.7	685	330	1200	660
DN600	Φ610*12.7	720	330	1200	580	Φ609.6*12.7	815	400	1200	1070
DN700	Φ711*14.5	815	375	1300	756	Φ711.2*14.5	900	440	1300	1280
DN800	Φ813*14.5	970	410	1300	1220	Φ813*14.5	1000	480	1300	1330



Partnership





Project Performance



Melut Basin Oil Development Project–Upstream Facilities EPCC Of The Field Surface Facilities(SO16)

Product:	Qty (Set):
Corrosion Coupons	35
Chemical Injection Quills	96
Corrosion Probes	35

Owner (Contractor):
Petrodar Operating Company Ltd, Sudan (Contractor: OCEEC)



Melut Basin Oil Development Project–Upstream Facilities EPCC Of The Field Surface Facilities(SOX)

Product:	Qty (Set):
Corrosion Coupons	8
Chemical Injection Quills	53
Corrosion Probes	8

Owner (Contractor):
Petrodar Operating Company Ltd, Sudan (Contractor: OCEEC)



EPCC For Field Surface Facilities (Year 2009 To 2011) Service Order NO.35

Product:	Qty (Set):
Pig Detectors	39

Owner (Contractor):
Petrodar Operating Company Ltd ,Sudan (Contractor :CPECC)



CNOOC Missan 90 Wells Upgrading Project

Product:	Qty (Set):
Chemical Injection Quills	405

Owner (Contractor):
CNOOC IRAQ LTD. Contract NO: CMIT–PRT–10.53–140 184 2015



**PetroChina Iraq Halfaya Early TIE-IN Sustaining
Production 250KBOP For Halfaya Oil Field Phase 3**

Product:	Qty (Set):
Chemical Injection Quills	18

Owner (Contractor):
Petro China Iraq Halfaya



Irap Missan Oilfield Project Unit Of CNI23

Product:	Qty (Set):
Chemical Injection Quills	60

Owner (Contractor):
Tianjin Shangkai Petroleum Engineering Technology Co., LTD



Project in Lampung Cargil

Product:	Qty (Set):
Pig Detectors	44

Owner (Contractor):
Indonesia



CNOOC project

Product:	Qty (Set):
Corrosion Coupons	42
Chemical Injection Quills	42

Owner (Contractor):
China

✉ Mail : info@emtpigging.com

☎ Tel : +86 024 24775966
+86 13124205692

📍 Add : No. 521-1, Lixiang Village, Hunnan District,
Shenyang City, Liaoning Province



Emt

SHENYANG EMT PIPING TECHNOLOGY CO.,LTD.