

PIPING TECHNOLOGY

SHENYANG EMT PIPING TECHNOLOGY CO.,LTD.

-  Mail: bonnie@emptigging.com
-  Tel: +86 024 24775966
+86 17614016838
-  Add: No. 521-1, Lixiang Village, Hunnan District,
Shenyang City, Liaoning Province



SHENYANG EMT PIPING TECHNOLOGY CO.,LTD.





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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.

Introduction

- Size Range: 2" ~ 64"
- Medium Temperature: -40°C ~ 90°C
- Elbow curve radius: $R \geq 1.5D$ (When pipeline nominal diameter ≥ 150)
 $R \geq 2.5D$ (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.

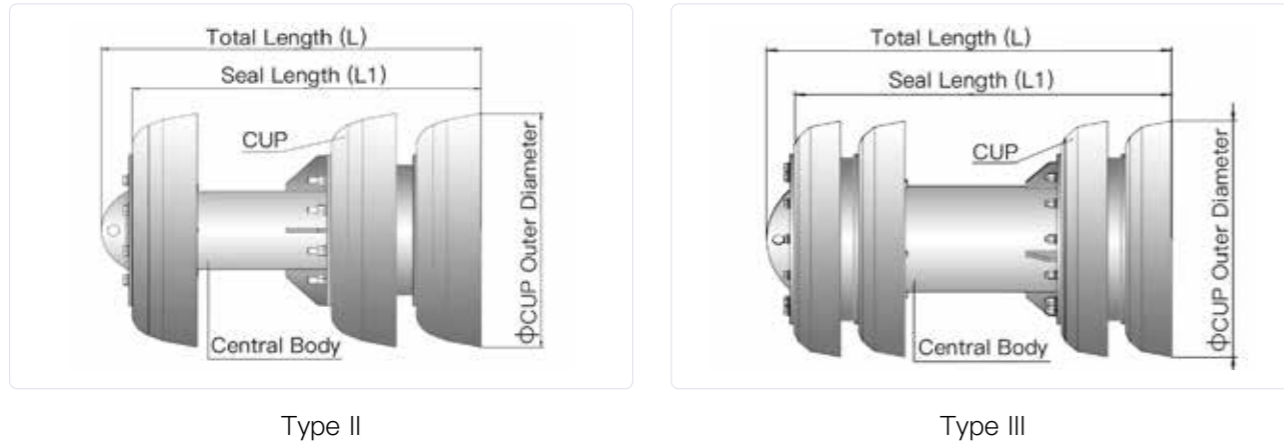
Polyurethane Test Report

Test Project	Test Report	Test Method
Shore Hardness/Shore A	85±2	GB/T 531.1-2008
DIN Abrasion[mm ³]	30	GB/T 53516
Akron abrasion[cm ³ /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



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

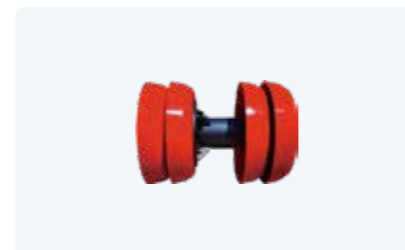
- Raw oil, product oil, edible oil, natural gas, LNG, chemical materials, coal water slurry, sewage, running water, etc



LCQZ-CZ-I Cup Pipeline Pigs

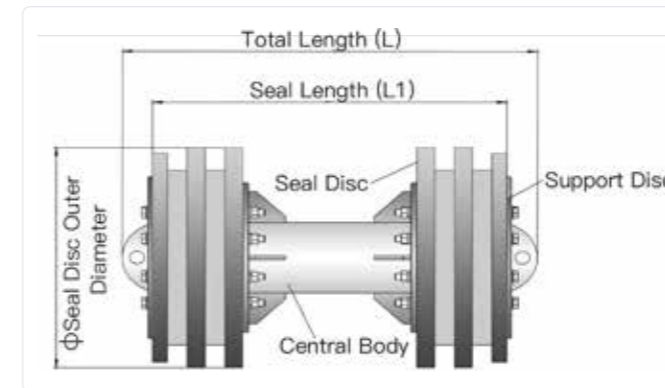


LCQZ-CZ-II Cup Pipeline Pigs



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	104	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	361	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



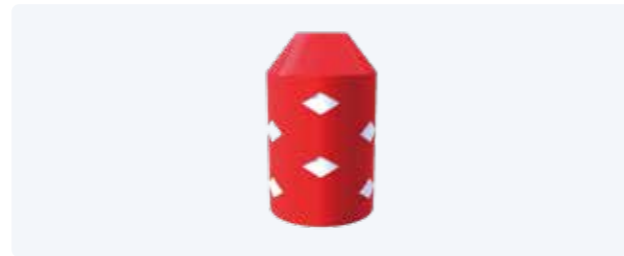
LCQZ-RTH Bi-Di Foam Pigs



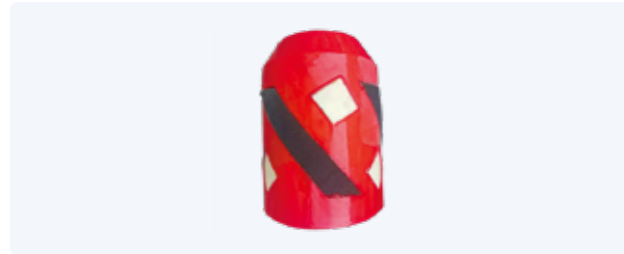
LCQZ-RTN Foam Pigs



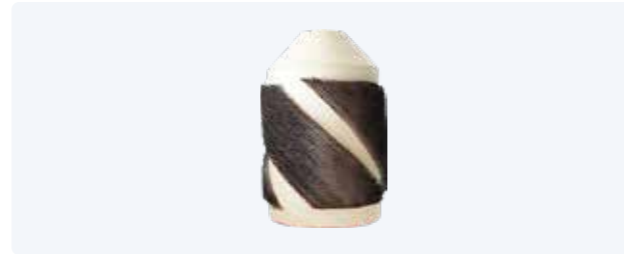
LCQZ-RTR Foam Pigs



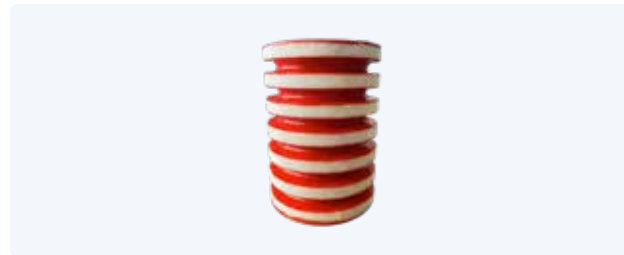
LCQZ-RTCC Foam Pigs



LCQZ-RTCB Foam Pigs



LCQZ-RTNB Foam Pigs



LCQZ-DRTH Foam Pig



LCQZ-RTFB Foam Pig



LCQZ-BRTH Foam Pig



LCQZ-RTSC Foam Pig

Cylinder Bi-Di Foam Pig Table

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

Bare Foam Pig Table

Name	Bare Foam Pig	
Model	LCQZ-RTN	
Performance	<p>[1] Soft texture and good flexibility;</p> <p>[2] With strong water absorption, the deformation amount can reach 60%;</p> <p>[3] Used for dewatering, cleaning and drying of pipelines.</p>	
Technical Parameters	Starting pressure: 0.2 MPa Withstand pressure: 7 MPa Compression ratio: 60 Attrition rate: 4 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: 50 km~150 km

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: 0.2 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

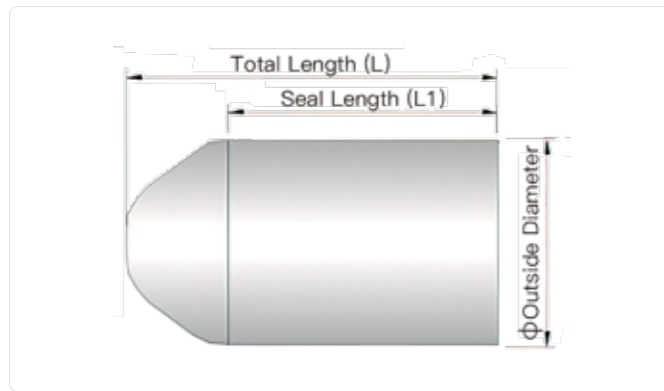
Criss cross Foam Pig Table

Name	Criss cross Foam Pig	
Model	LCQZ-RTCC	
Performance	<p>[1] The interior is foamed by polyurethane material, and the surface is covered with a prismatic block polyurethane elastomer.</p> <p>[2] High surface hardness and large friction coefficient;</p> <p>[3] Has high elasticity and toughness;</p> <p>[4] Used for pipeline cleaning, cleaning, cleaning impurities</p>	
Technical Parameters	Starting pressure: 0.2 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





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 $R \geq 1.0D$.

(Table 2)

Serial Number	Normal Pipe Size(DN)	Outside Diameter(mm)	Seal Length(mm)	Total Length(mm)
1	1/8"	10.5		20
2	1/8"	11		20
3	1/4"	14		20
4	3/4"	30		50
5	1"	35	48	58
6	1"	38	52	63
7	1 1/4"	40	54	66
8	1 1/4"	42	57	69
9	1 1/2"	45	61	74
10	1 1/2"	48	64	78
11	1 1/2"	50	68	83
12	1 1/2"	52	70	85
13	1 1/2"	53.5	72	87
14	2"	56	74	90
15	2"	58	78	95
16	2"	60	81	98
17	2"	63	84	102
18	2"	65	87	106
19	2"	66	88	107
20	2 1/2"	68	91	111
21	2 1/2"	70	94	115
22	2 1/2"	73	98	120
23	2 1/2"	75	100	123
24	2 1/2"	78	104	128
25	2 1/2"	79	104	128
26	2 1/2"	80.5	90	105

Serial Number	Normal Pipe Size(DN)	Outside Diameter(mm)	Seal Length(mm)	Total Length(mm)
27	2 1/2"	81	100	125
28	3"	81	108	133
29	3"	83	110	136
30	3"	84	110	136
31	3"	86	114	141
32	3"	89	120	148
33	3"	92	120	148
34	3"	95	126	156
35	3 1/2"	97	130	160
36	3 1/2"	99	135	165
37	3 1/2"	101	135	166
38	3 1/2"	102	138	170
39	3 1/2"	103	138	170
40	3 1/2"	104	139	171
41	3 1/2"	105	103	125
42	3 1/2"	105	140	172
43	3 1/2"	106	141	173.5
44	4"	109	135	169
45	4"	110	103	125
46	4"	110	146	180
47	4"	110	112	135
48	4"	112	150	184
49	4"	114	152	187
50	4"	115	152	187
51	4"	120	160	197
52	4"	123	165	203
53	4"	125	168	206
54	5"	130	173	213
55	5"	133	176	217
56	5"	135	180	221
57	5"	137	180	221
58	5"	140	186	229
59	5"	143	190	235
60	5"	145	194	239
61	5"	148	197	243
62	5"	150	200	246
63	5"	153	204	249
64	6"	156	208	256
65	6"	158	233	280
66	6"	160	216	266
67	6"	160	219	266
68	6"	163	216	266
69	6"	165	216	266
70	6"	167	218	268
71	6"	169	220	270
72	6"	178	230	280
73	6"	182	230	280
74	6"	188	240	290
75	6"	190	240	290
76	8"	195	245	297
77	8"	202	250	305
78	8"	206	255	310
79	8"	207	240	290
80	8"	210	260	315
81	8"	214	270	330
82	8"	217	270	330

Serial Number	Normal Pipe Size(DN)	Outside Diameter(mm)	Seal Length(mm)	Total Length(mm)
83	8"	222	275	335
84	8"	230	290	353
85	8"	240	305	368
86	10"	250	317	380
87	10"	256	320	385
88	10"	262	330	395
89	10"	266	335	403
90	10"	270	345	415
91	10"	272	345	415
92	10"	274	566	646
93	10"	276	345	415
94	10"	280	355	425
95	10"	286	360	430
96	10"	295	372	444
97	12"	302	380	455
98	12"	306	385	460
99	12"	310	390	465
100	12"	317	400	476
101	12"	320	405	480
103	12"	323	410	490
104	12"	327	412	494
105	12"	330	415	499
106	12"	335	422	506
107	14"	342	430	514
108	14"	350	440	526
109	14"	356	446	532
110	14"	360	460	550
111	14"	365	460	550
112	14"	370	480	575
113	14"	380	475	570
114	16"	392	490	585
115	16"	402	500	600
116	16"	406	500	600
117	16"	409	530	630
118	16"	414	530	630
119	16"	425	540	640
120	16"	432	550	655
121	18"	440	560	670
122	18"	445	600	820
123	18"	450	575	685
124	18"	465	590	705
125	18"	476	600	710
126	20"	488	610	720
127	20"	496	620	730
128	20"	503	620	730
129	20"	507	610	800
130	20"	510	640	755
131	20"	513	640	765
132	20"	520	650	770
133	20"	524	650	770
134	22"	538	660	780
135	22"	546	670	790
136	22"	556	700	837
137	22"	560	700	820
138	22"	572	720	845
139	24"	590	750	880

Serial Number	Normal Pipe Size(DN)	Outside Diameter(mm)	Seal Length(mm)	Total Length(mm)
140	24"	605	750	880
141	24"	613	760	962
142	24"	613	760	913
143	24"	620	770	900
144	24"	630	785	915
145	26"	642	890	1020
146	26"	652	885	1020
147	26"	676	860	1000
148	26"	685	860	1000
149	28"	695	860	1000
150	28"	725	890	1040
151	30"	745	940	1100
152	30"	750	970	1148
153	30"	782	990	1160
154	32"	800	1030	1220
155	32"	826	1050	1240
156	34"	846	1070	1260
157	36"	926	1180	1390
158	38"	946	1200	1410
159	40"	1006	1310	1550
160	42"	1046	1330	1560
161	42"	1080	1370	1620



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

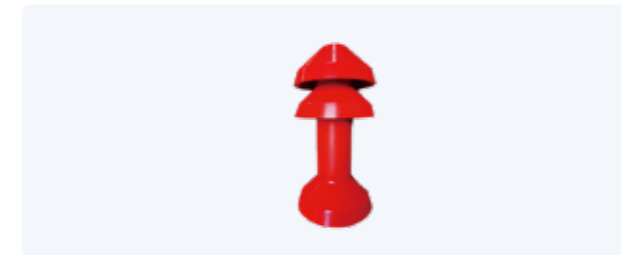
- Mainly used for cleaning of pipelines (water, gas, oil, chemical reagents and other media)



SCP-C3



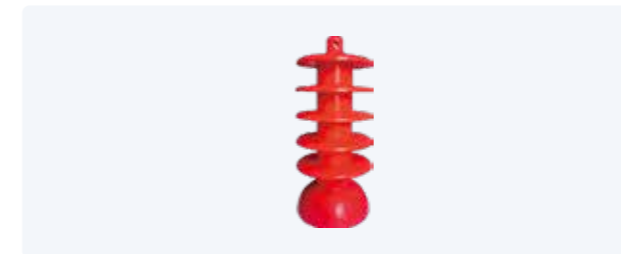
SCP-HI



SCP-C



SCP-D



SCP-DC



SCP-SE



SCP-CD



SCP-M



SCP-PB



SCP-TP

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 DN300).	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	Flange connection	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 it 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.

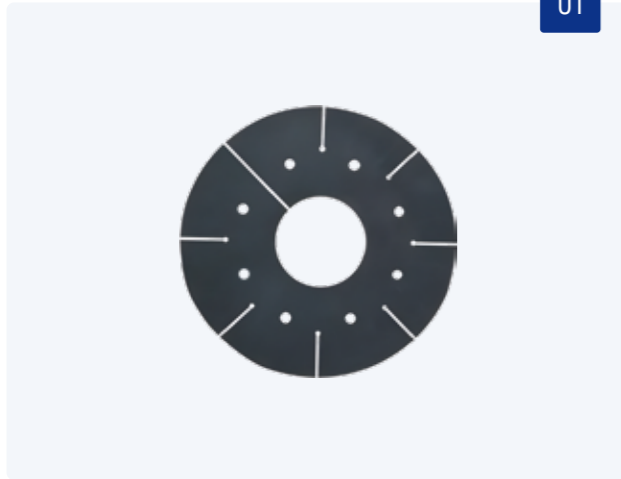


LCQZ-BT High Sensitivity Receiving

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

01



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.

02



Magnetic Steel

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

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.

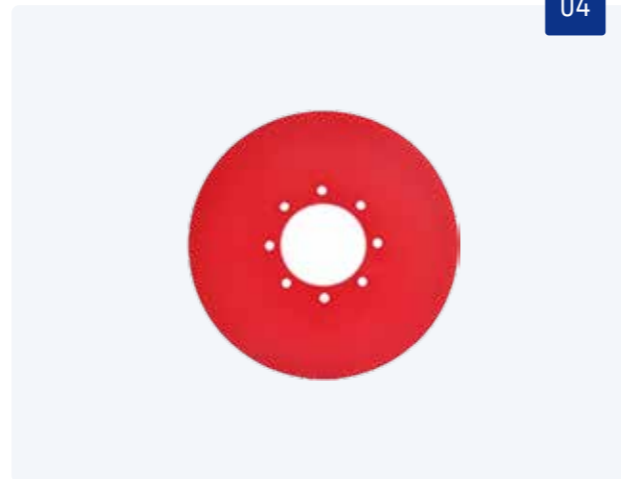
03



Carbon Steel Body

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

04



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.

07



Transmitter

It is used to transmit signals to locate the pig.

08



Cup

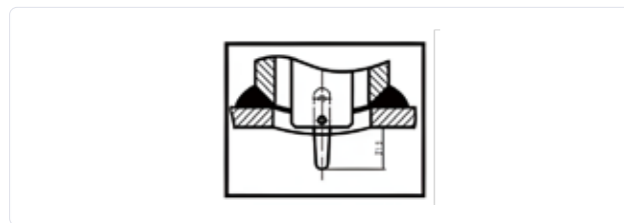
Made of polyurethane, it is the main component of the pig.

03 PIG SIGNALLER

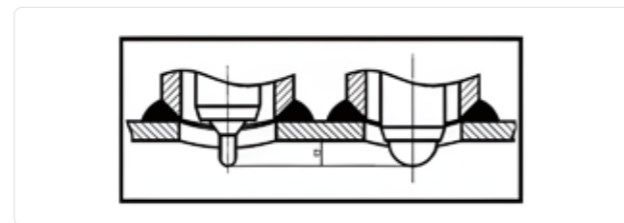
Introduction

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 rest flag

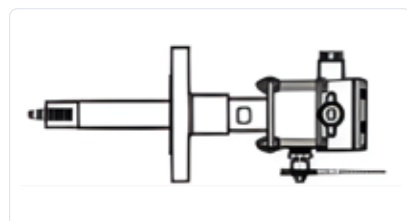


Manual reset flag combined with electrical switch output

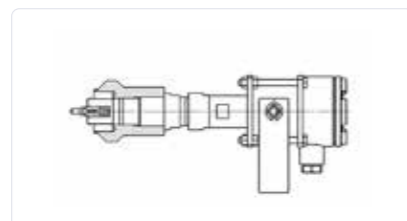


Digital display combined with electrical switch output

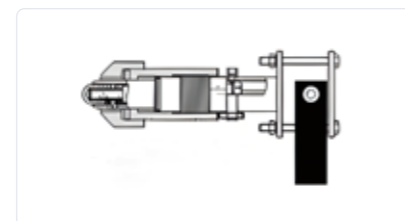
Base types



2" flange connection



2" welded nipple



2" welded base NPT nipple connection

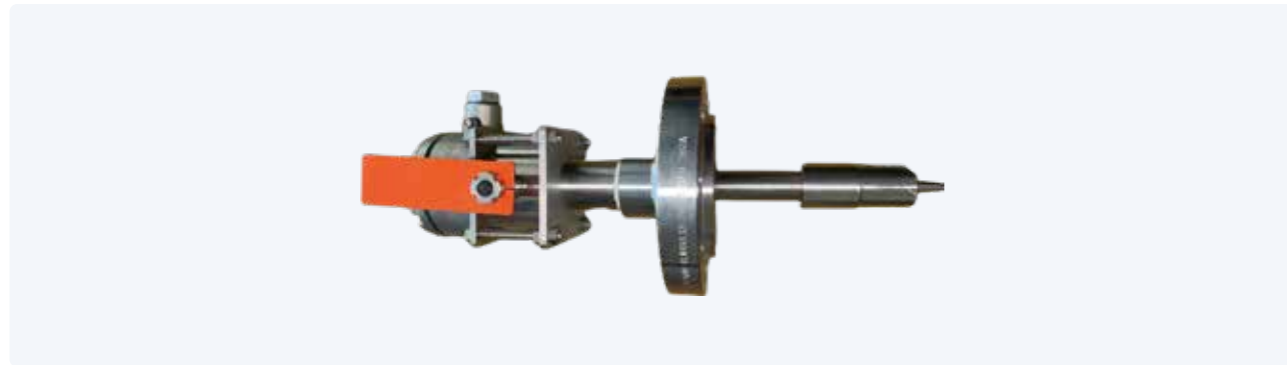
Pig Passage Indicator Model Selection Table

Code	Pig Passage Indicator							
ETQ	Pig Passage Indicator							
Code	Type of Pig Passage Indicator							
RI	REIV with NPT ball valve							
RD	REDV with Flanged Ball Valve							
RN	Without retrieval tool							
Code	Ball valve connection type, pressure level and material							
	Nominal diameter	Connection thread type		Pressure level		Material ①		
	0	No ball valve	0	No ball valve	0	No ball valve	Cd	ASTM A105 Carbon Steel
	1	1½"	1	NPT external thread (threaded ball valve)	1	150#	Cg	ASTM A350 LF2 Carbon Steel
	2	2"	2	NPT internal thread (threaded ball valve)	2	300#	Sa	SS316L
			3	RF (Flange ball valve)	3	600#	Db	F51
			4	RJ (Flange ball valve)	4	900#	Dd	F53
					5	1500#	Ta	Inconel 625
					6	2500#	Tb	Hastelloy C-276
Code	Trigger Type and Material of wetted parts							
	Trigger Type			Material of wetted parts ①				
	B	Bi-directional		Sa	SS316L			
	U	Uni-directional		Db	F51			
				Dd	F53			
				Ta	Inconel 625			
				Tb	Hastelloy C-276			
Code	Ball valve connection type, pressure level and material							
	Nominal diameter	Connection thread type		Pressure level		Material ①		
	1	1½"	1	NPT external thread (threaded ball valve)	1	150#	Cd	ASTM A105 Carbon Steel
	2	2"	2	NPT internal thread (threaded ball valve)	2	300#	Cg	ASTM A350 LF2 Carbon Steel
			3	RF (Flange base)	3	600#	Sa	SS316L
			4	RJ (Flange base)	4	900#	Db	F51
					5	1500#	Dd	F53
					6	2500#	Ta	Inconel 625
							Tb	Hastelloy C-276
Code	Adjustable/Non-adjustable and adjustable range							
	0	Adjustable±10mm						
	1	Adjustable±20mm						
	2	Non-adjustable						
Code	Indicator Type							
	B	Flag Indicator						
	CA	Remote Transmission Indicator (½ NPT connection)						
	CB	Remote Transmission Indicator (M20 connection)						
	CC	Remote Transmission Indicator (M20*1.5 connection)						
	CL	Not our company Remote Transmission Indicator						
	CR	Remote-Transmission and Counting Indicator						
	D	Electrical clock indicator with Auto Reset						
	CD	Remote Transmission Indicator (¾NPT connection)						
Code	Feature size (trigger component insertion depth into the pipe)							
	HOLD	L						

ETQ RI 233Sa BSa 233Sa 2 CA 150 Example

Note: ① Other materials can be customized according to user requirements.

1) Pig Signaller – Flange Connection



Model Code: SN2-TQZ-TIFPS

	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°C /Meet customer requirements		
NACE MR 0175	Yes		
Ingress protection	IP66		
Explosion-proof class		Exd II BT4	Exd II BT4
Remove under pressure	No		

Optional Feature

• Standard configuration ○ Optional configuration – None

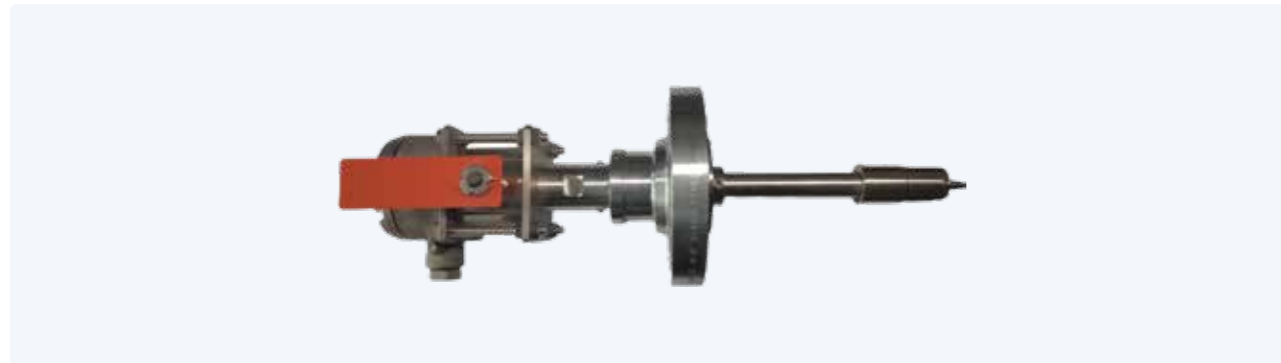
Trigger type (B-bi-directional/U-Uni-directional*)	● / ○		
Internal part material (316L SS/DSS/INCONEL)	● / ○ / ○		
Flange/Body material (PTFE Coated A105N/304SS/316LSS/ DSS/INCONEL/As per MR)	● / ○ / ○ / ○ / ○ / ○		
The position of Internal liquid surface (High_Need to heating/Low_With no need for heating) [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 (M20x1.5(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°C /Meet customer requirements		
NACE MR 0175	Yes		
Ingress protection	IP66		
Explosion-proof class		Exd II BT4	Exd II BT4
Remove under pressure	No		

Optional Feature

• Standard configuration ○ Optional configuration – None

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 (M20x1.5(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/Bi-directional		
Insert depth (In pipe)	13mm		
Plug body length	Settled		
Insert depth adjustment	20mm		
Operating temperature	-20 ~ 120°C /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		

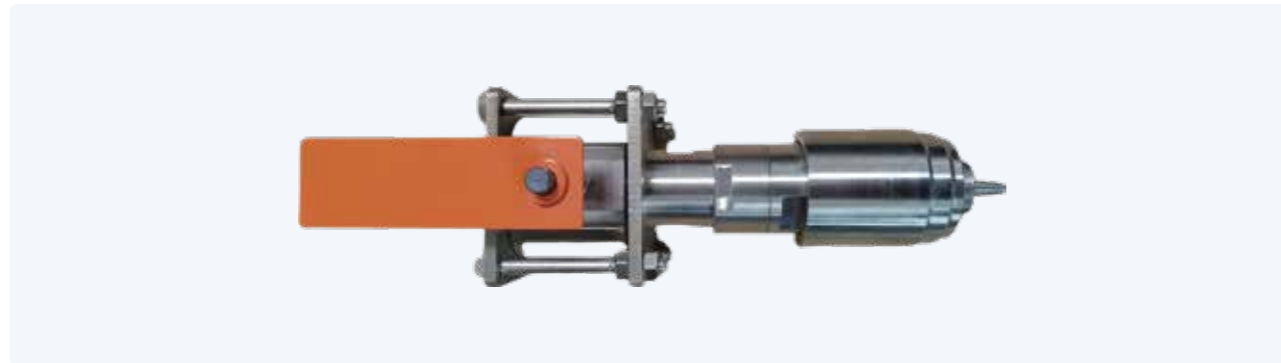
Optional Feature

• 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 (M20x1.5(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			

Optional Feature

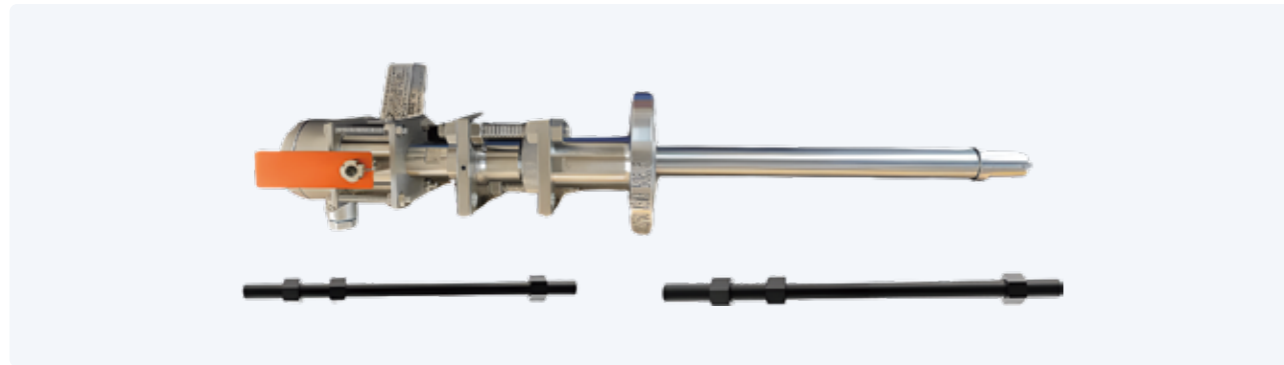
• Standard configuration ○ Optional configuration – None

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 (CLASS150~2500)		
Plug body length _Correspond to total stand off	Meet the actual needs		
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	Yes (The whole machine comes with a simple retriever_ two whole threaded studs)		

Optional Feature

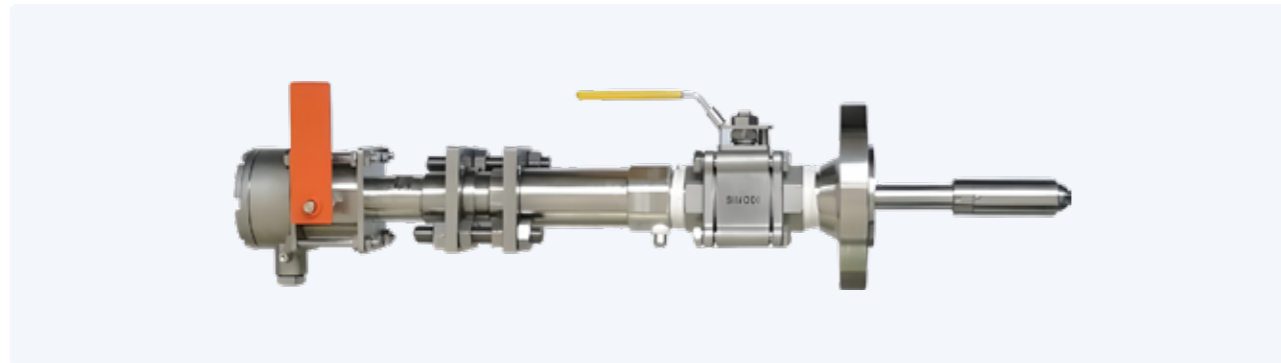
• Standard configuration ○ Optional configuration – None

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 (-∞ — +10mm)	○		

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 (CLASS150–2500)		
Plug body length _Correspond to total stand off	Meet the actual needs		
Operating temperature	-20 ~ 120°C /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)		

Optional Feature

• Standard configuration ○ Optional configuration – None

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)	- / ●		
Junction box material (Aluminium alloy/316SS)	- / -	○ / ●	● / -
Switch type (DPDT/2*SPDT)	- / -	○ / ●	○ / ●
Switch rating (DC24V 3A/DC24V 5A)	- / -	● / ○	● / -
Electrical connection size (M20x1.5(F)/1/2" NPT(F))	- / -	● / ○	● / -
Retriever (Two full thread stud/ special tool)	● / ○		
Insert depth adjustment range (- ∞ — +10mm)	●		

Corresponding relations between trigger and Insert depth (In pipe)

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

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°C /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)		

Optional Feature

• Standard configuration ○ Optional configuration – None

Trigger type (B-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 (M20x1.5(F)/1/2" NPT(F))	- / -	● / ○	● / -
Retriever (Two full thread stud/ special tool)	● / ○		
Insert depth adjustment range (-∞ — +10mm)	●		

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 (CLASS150–2500)		
Plug body length _Correspond to total stand off	Meet the actual needs		
Operating temperature	–20 ~ 120°C /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)		

Optional Feature

• Standard configuration ○ Optional configuration – None

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 (– ∞ – +10mm)	●		

Corresponding relations between trigger and Insert depth (In pipe)

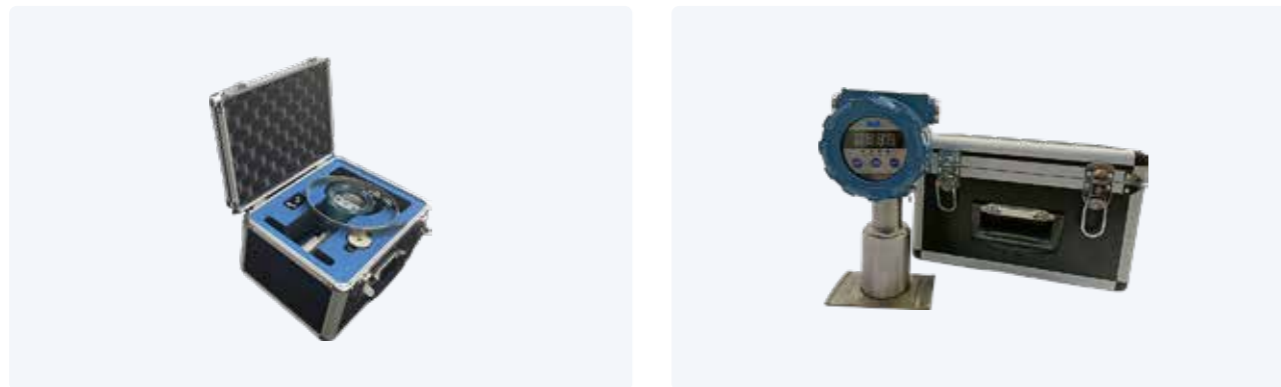
Trigger type	Bi–directional
Insert depth (In pipe)	21mm

9) Non-intrusive Pig Signaller

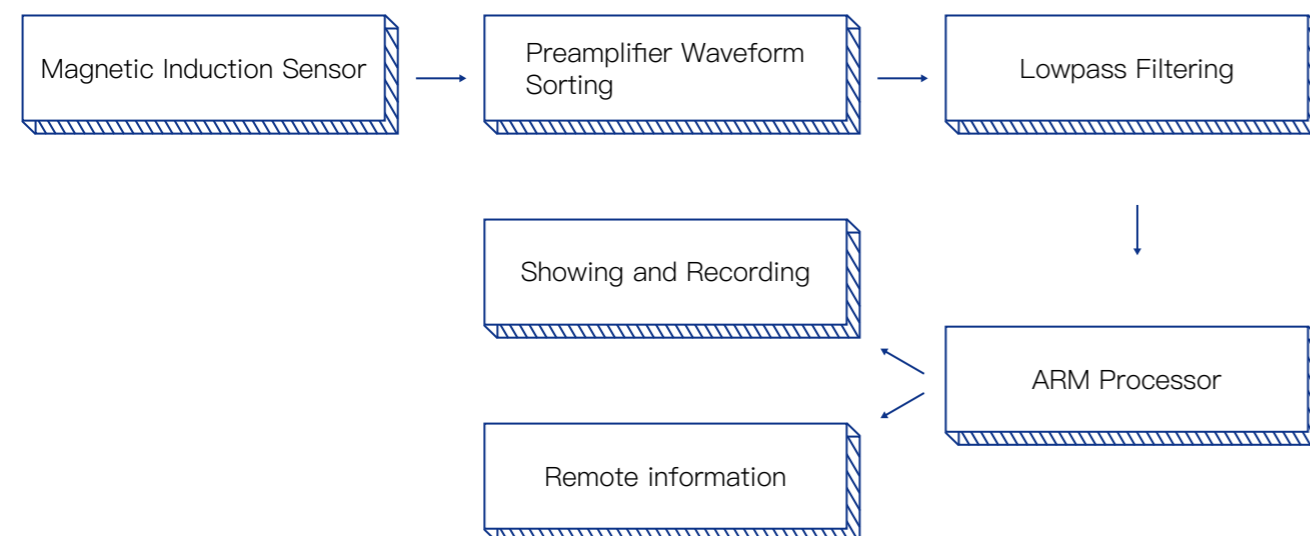
Product Information

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 IP66), 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° C / 80° C
2	Operating Humidity	41% ~ 83%
3	Direction	Bi-directional
4	Sensor Type	Magnetic Induction
5	Signal Switch Type	SPDT/DPDT
6	Passing time	±2s
7	Cleaning Pig Speed Range	0.2-10M/s
8	Switch Capacity	3A
9	Reset Type	Auto Reset
10	Cable Joint Type	M20*1.5, 1/2" NPT (F)
11	Explosion-Proof	Exd IICT6 Gb
12	IP Grade	IP66



04 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.

					
Name	EMT Mechanical Injection Quill	EMT Mechanical Injection Quill	EMT Hydraulic Injection Quill	EMT Retractable Injection Quill	EMT Retractable Injection Quill
Connection Type	1" NPT Welded	2" ANSI Flange	1" or 2" Welded / 2" ANSI Flange	1" NPT Welded	2" ANSI Flange
Type of Nozzle	 Parallel Nozzle Holder	 Perpendicular Nozzle Holder	 Open	 Sampling Quill	 Notched Quill
Design Temperature	-20°C ~ 150°C	-20°C ~ 150°C	-20°C ~ 150°C	-20°C ~ 150°C	-20°C ~ 150°C
Design Pressure	MAX. 6000PSI	150LB, 300LB, 600LB, 900LB, 1500LB, 2500LB	MAX. 10000PSI	MAX.6000PSI	150LB, 300LB, 600LB, 900LB, 1500LB, 2500LB

Model and Parameter Table

Model	Injection/Sampling Tube
J	Injection Tube ①
	Code Dia of Injection Tube
	1/4" Diameter of Tube 1/4"
	1/2" Diameter of Tube 1/2"
	3/4" Diameter of Tube 3/4"
	1" Diameter of Tube 1"
	Code ② Check Valve Type
	0 No Check Valve
	1 Check Valve (Rating 3600PSI)
	2 Check Valve (Rating 6000PSI)
	Code Tube Type
	Op Open
	Qu Quill
	Sp Sampling Tube
	Nz Nozzle
J	1/4" 1 Nz Example

Note:

① The material of the injection tube and sampling tube is consistent with the plug assembly by default; other materials can be customized according to user needs;

② This item only reflects the configuration of the injector. The sampler can omit this item. The material and thread depend on the size of the injection tube;



Notched Quill



Sampling Quill



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: 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: Material in CS

05 CORROSION COUPON


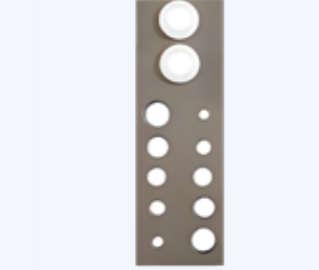

Introduction

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"x1" x1/8" (76.2mm x19.0mmx3.2mm) With 2 mounting holes.	3"x1" x1/8" (76.2mm x 12.7mm x 3.2mm) With 2 mounting holes.	Φ1.25" (31.8mm) Thickness 1/16" (3.2mm) With 1 mounting hole.

Model	Coupon
C	Coupon
	Code Coupon Size
	S1 3" Strip Coupon Width 0.5"
	S2 3" Strip Coupon Width 1"
	L1 Ladder Strip Coupon
	D1 Flush Disc Coupon
	MD Multiple Disc Coupon
	Code Coupon Material
	Cc ASTM A1018 Mild Steel
	Cg ASTM A350 LF2 Carbon Steel
	Sa SS316L
	Db F51
	Code Surface Finish
	0 Ground Glass
	1 Directional Sanded
	2 Bead Blast
	Code Handling
	0 Pre-weighed
	1 Un-weighed
	Code Special Options
	0 No Special Option
	1 Stamp Serial Number on Both Sides
	C S2 Cc 1 0 1 ← Example

Note: Corrosion coupons of other specifications and materials can be customized according to user requirements.



2) Corrosion Coupon Holder



Disc Corrosion
Coupon Holder



Multiple Disc Corrosion
Coupon Holder



Strip Corrosion
Coupon Holder



Ladder Strip Corrosion
Coupon Holder

3) Access Fitting

Design Temperature: -20°C ~ 120°C

Welded Base Design Pressure: MAX.6000PSI (Hydraulic type: MAX. 10000PSI)

Flange Base Design Pressure: 150LB, 300LB, 600LB, 900LB, 1500LB, 2500LB.

Mechanical



2" Welded Access Fitting



2" Access Fitting with Flange

Hydraulic



1" or 2" Welded Access Fitting



2" Access Fitting with Flange

4) Protective Cover



Protective Cover



Protective Cover with Bleed Valve and Pressure Gauge

5) Retractable Corrosion Coupon



2" Welded



2" ANSI Flange

Model and Parameter Table

Model	Plug Body Assembly					
CC	Plug Body Assembly					
	-Code	Plug				
		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	PTFE 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	2" Welded (suffix "pressure rating" can be added to B)	
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 cover 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.

06 CORROSION PROBE



Introduction

EMT corrosion probe is a specialized device used to detect, monitor, and measure the rate of corrosion in a variety of systems, particularly in pipelines, storage tanks, refineries, and industrial processing facilities. It is a critical tool in corrosion monitoring programs aimed at ensuring safety, maintaining asset integrity, and reducing maintenance costs.

Main technical parameters

- Material: CS, 316L, F51 duplex stainless steel;
- Sealing material: Teflon/Viton;
- Working temperature: $-20\sim 200\text{ }^{\circ}\text{C}$ (The temperature can be customized according to customer requirements);
- Working pressure: 0–26MPa;
- Flange size: ANSI 2"RF (or RJ) ;

Components

1) Digital Transmitter



Bluetooth digital transmitter



Cable digital transmitter

2) Probe Adaptor



Probe Adaptor

3) Protective Cover



Heavy Duty Protective Cover



Protective Cover with Hole



Protective Cover with Bleed Valve and Pressure Gauge

4) Access Fitting

Mechanical



Welded Access Fitting



Access Fitting with Flange

Hydraulic

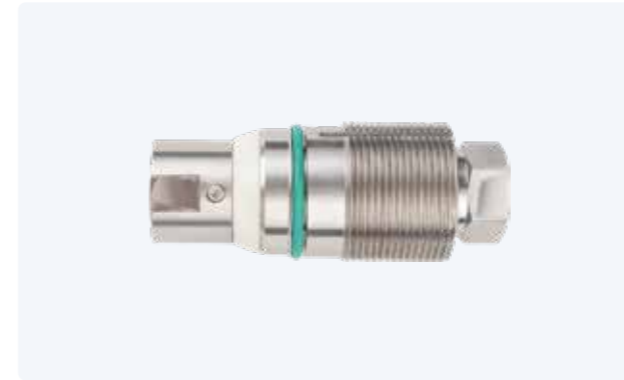


Welded Access Fitting



Access Fitting with Flange

5) Plug Assembly



Hollow Carrier Plug

6) Probe

Electrical Resistance (ER) Probe

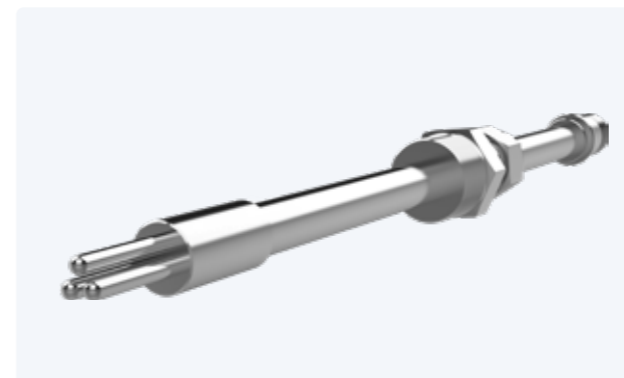


Flush resistance probe

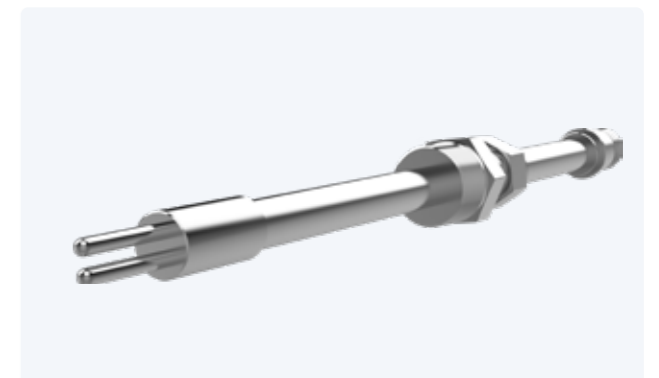


Cylindrical resistance probe

Linear Polarization Resistance (LPR) Probe



Three-Fingered columnar electrode



Two-Fingered columnar electrode

7) Data Logger



ER Portable Data Transfer Unit

▶ Portable Data Transfer Unit



ER Portable Data Transfer Unit



LPR Portable Data Transfer Unit



1) Electrical Resistance (ER) Probe



Type	Resistance Probe Assembly						
ECP	-Code Plug						
	Type		Material		Sealing Material		
	0	No Request	0	Carbon Steel	0	No Requirements	
	Pxxx	1	Hollow insert	1	316 stainless steel	1	Fluorine rubber sealing
				2	316L stainless steel	2	Hydrogenated Nitrile
3				F51 Duplex stainless steel			
			4	INCONEL Nickel based			
Txxx	-Code Temperature and pressure gauge components						
	Connection size		Body Material		Temperature and pressure gauge material		
	0	No Requirements	0	304 stainless steel	0	No Requirements	
	1	1/2"	1	316 stainless steel	1	304 stainless steel	
	2	3/4"	2	316L stainless steel	2	316 stainless steel	
			3	F51 Duplex stainless			
Dxx-Lx"	-Code Probe Assembly						
	Connection size		Body Material		Pipeline Specifications(")		
	0	No Requirements	0	stainless steel	Probe length varies with pipeline specifications		
	1	1/4"	1	304 stainless steel			
	2	3/2"	2	304L stainless steel			
			3	316 stainless steel			
		4	316L stainless steel				
		5	F51Duplex stainless				

Example: : ECP-P121-T021-D02-L6"

ECP : Resistance Probe Assembly;

P121:he hollow insert material is 316L, with fluorine rubber ring and polytetrafluoroethylene main steel;

T201: The size of the temperature and pressure gauge component connector is 3/4 " , and the material is 304 stainless steel. The temperature and pressure gauge is 304 stainless steel;

Complete set of resistance probe components:

EMT-CIPA-0F600#RF-0-2/CS +ECP-P121-T021-D02-L6"

2) Linear Polarization Resistance (LPR) Probe



Model	LPR Corrosion Monitoring Probe										
LPR5000	Sealing Lock Tight Packing Style Installation										
LPR6000	Flange Fixed Integral Welding Style Installation										
LPR7000	High-Pressure Load-Bearing Style Installation										
LPR8000	Normal Temperature and Pressure Fixed Threaded Stub Style Installation										
	Code	Probe Installation Form									
	SS	Telescoping Insertion Length Style									
	GD	Fixed Insertion Length Style									
	RD	Probe Body Cable Flexible Style									
	Code	Probe Length/Installation Length									
	850	No prefix letter, full length of the telescoping probe (replace with actual length when ordering)									
	GDXXX	Length from the sealing end of the fixed probe to the electrode head is XXXmm									
	RDXXX	Length from the sealing end of the flexible probe body cable to the electrode head is XXXmm									
	Code	Electrode Form									
	3Z	Three-Fingered Columnar Electrode									
	3P	Three-Piece Planar Electrode									
	3H	Three-Ring Annular Electrode									
	XD	Custom Form Electrode									
	Code	Electrode Material (Replace with actual material domestic standard)									
	20#	20# Electrode Material									
	316	316 Electrode Material									
	Q235A	Q235A Electrode Material									
	Code	Range of Extensibility									
	GB...	GB HG/T20592-2009 DN50 PN25 RF									
	MB...	MB HG/T20615-2009 CL150 DN50 RF									
LPR5000	-	SS	-	850	-	3Z	-	20#	-		Example 1
LPR6000	-	GD	-	GD850	-	3P	-	316	-	MB HG/T20615-2009 CL150 DN50 RF	Example 2
LPR7000	-	RD	-	RD1000	-	3H	-	Q235A	-		Example 3

07 RETRIEVAL TOOL

1) Mechanical Retrieval Tool

Introduction

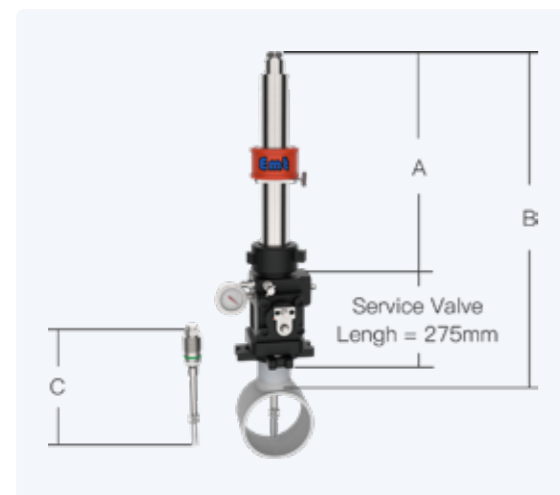
The EMT-WRTV retrievers and service valves are designed to insert and retrieval the target assembly that include conventional 2" corrosion monitoring assemblies and special plug assembly of EMT pig detector under pressure.

Main technical parameters

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

Main technical parameters

- 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 retrieval and installation under pressure.
- It is small in size, light in weight and easy to carry.

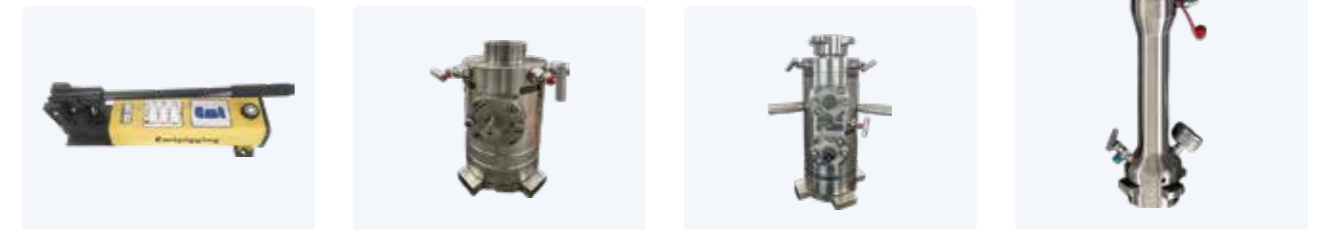


Letter	Description	Maximum Pipeline Size		
		12"	24"	36"
A	Retriever – (mm)	710	1000	1300
B	Retriever and Service Valve – (mm)	985	1275	1575
C	Insert Depth – (mm)	460	750	1050
	Weight – (kgs)	25.4	27.6	30

2) Hydraulic Retrieval Tool

Introduction

EMT hydraulic retrieval tool is used for safe operation of pipelines under normal operating conditions convenient installation or retrieval of hanging pieces or probes. Hydraulic design can greatly reduce the size and weight of hydraulic retrieval tools, greatly improve portability; At the same time, through innovative design, hydraulic retrieval tools are driven by hydraulic pressure, making operation more convenient and labor-saving.



Technical Parameters

Technical parameters of hydraulic retrieval tools

Type	EMT-HRTV-315	EMT-HRTV-500	EMT-HRTV-600
Max retrieval length	315mm	500mm	600mm
Applicable pressure range	0-3600Psi	0-3600Psi	0-3600Psi
	0-6000Psi	0-6000Psi	0-6000Psi
Applicable temperature range	-60°C -200°C	-60°C -200°C	-60°C -200°C
External dimensions	174x174x838	174x174x1208	174x174x1408
Net Weight	27.7Kg	33.3Kg	36.2Kg

Isolation valve technical parameters

Type	EMT-B1V-36	EMT-B2V-60
Height	315mm	500mm
Applicable pressure range	0-3600Psi	0-6000Psi
Applicable temperature range	-60°C -200°C	-60°C -200°C



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: 6mm~100mm

09 PIG LAUNCHER AND RECEIVER

Introduction

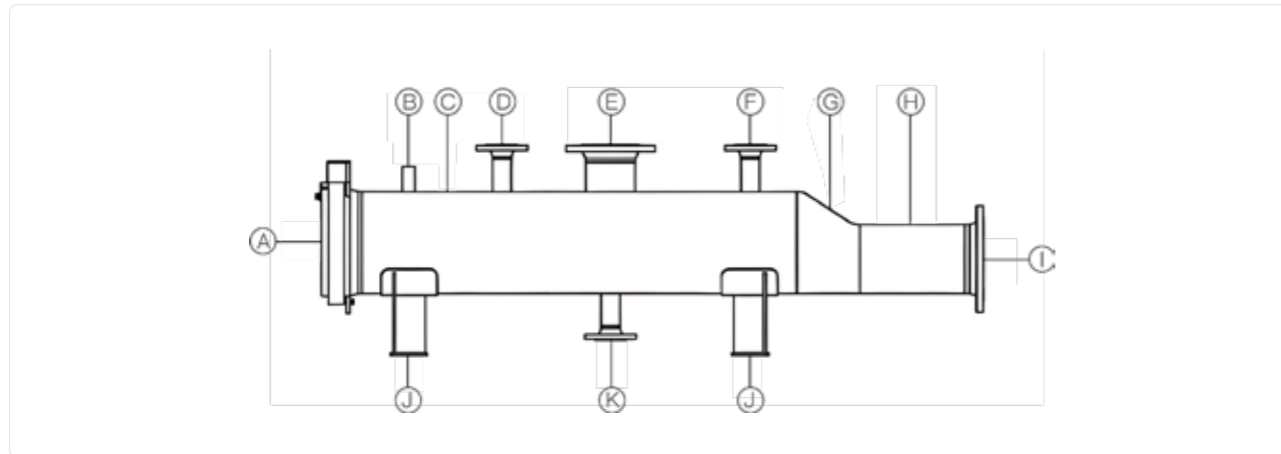
The pig launcher and receiver is an important process equipment for sending and receiving pigging equipment during the pipeline cleaning operation. It uses the flow of the original medium in the pipeline as the driving force to push the pig in the pig launcher to run in the pipeline, so as to achieve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

Technical parameter

- Design pressure: 0—42Mpa.
- 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

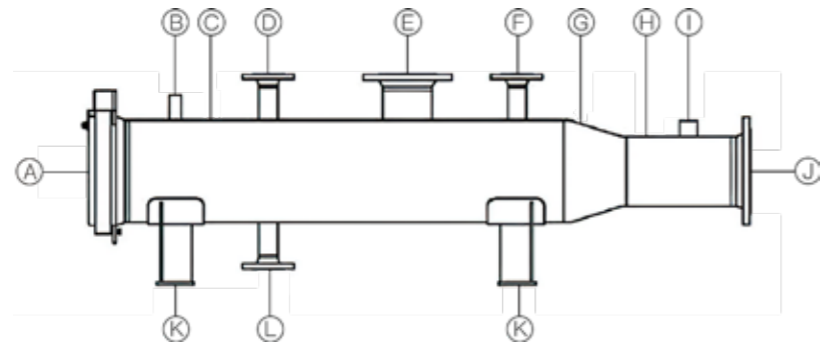


Explain

- 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

Nominal Diameter DN (mm)	Pipe Diameter D (mm)	Size Parameters of Pig Launcher										Specifications and Dimensions of Tube (Length 120mm)				Specifications of Support	
		L1	L2	L3	L4	L5	L6	L7	L8	A	H	Barometer Connecting Tube	Fluid Inlet Tube	Air Relief Valve Connecting Tube	Contaminant Discharge Tube	Front Support	Rear Support
150	114	760	140	200	100	180	100	280	100	560	300	ZG1/2"	114	ZG3/4"	60	AZ-150	AZ-150
200	159	800	152	200	100	210	100	300	100	600	320	ZG1/2"	159	ZG3/4"	60	AZ-150	AZ-150
200	168	800	152	200	100	210	100	300	100	600	320	ZG1/2"	168	ZG3/4"	60	AZ-150	AZ-150
250	219	860	178	200	100	280	100	300	100	660	350	ZG1/2"	219	ZG3/4"	60	AZ-250	AZ-250
300	273	960	200	200	100	340	100	320	100	760	380	ZG1/2"	273	ZG3/4"	60	AZ-300	AZ-300
350	325	1080	240	240	100	360	100	320	100	880	410	ZG1/2"	325	ZG3/4"	89	AZ-350	AZ-350
400	377	1200	280	240	100	400	100	320	100	1000	430	ZG1/2"	325	ZG3/4"	89	AZ-400	AZ-400
500	426	1300	300	300	120	430	120	320	120	1100	480	ZG1/2"	377	ZG3/4"	89	AZ-500	AZ-500
600	529	1420	320	300	120	480	120	340	120	1180	530	ZG1/2"	426	ZG3/4"	89	AZ-600	AZ-600
700	630	1550	340	300	120	540	120	340	120	1310	580	ZG1/2"	529	ZG3/4"	89	AZ-700	AZ-700
800	720	1680	360	300	120	580	120	340	120	1440	640	ZG1/2"	529	ZG3/4"	89	AZ-800	AZ-800
900	820	1800	380	300	120	640	120	340	120	1560	680	ZG1/2"	620	ZG3/4"	89	AZ-900	AZ-900

2) Pig Receiver Structure Drawing



Explain

- Ⓐ Quick Opening Closure
 - Ⓓ Utility Nozzle
 - Ⓔ Reducer
 - Ⓙ Pipeline Connection
- Ⓑ Pressure Gauge
 - Ⓔ Inlet
 - Ⓕ Minor Barrel
 - Ⓚ Support
- Ⓒ Major Barrel
 - Ⓗ Vent
 - Ⓛ Indicator
 - Ⓛ Drain

Nominal Diameter DN (mm)	Pipe Diameter D (mm)	Size Parameters of Pig Receiver										Specifications and Dimensions of Tube (Length 120mm)				Specifications of Support	
		L1	L2	L3	L4	L5	L6	L7	L8	A	H	Barometer Connecting Tube	Fluid Inlet Tube	Air Relief Valve Connecting Tube	Contaminant Discharge Tube	Front Support	Rear Support
150	114	760	140	200	100	180	100	280	100	560	300	ZG1/2"	114	ZG3/4"	60	AZ-150	AZ-150
200	159	800	152	200	100	210	100	300	100	600	320	ZG1/2"	159	ZG3/4"	60	AZ-150	AZ-150
200	168	800	152	200	100	210	100	300	100	600	320	ZG1/2"	168	ZG3/4"	60	AZ-150	AZ-150
250	219	860	178	200	100	280	100	300	100	660	350	ZG1/2"	219	ZG3/4"	60	AZ-250	AZ-250
300	273	960	200	200	100	340	100	320	100	760	380	ZG1/2"	273	ZG3/4"	60	AZ-300	AZ-300
350	325	1080	240	240	100	360	100	320	100	880	410	ZG1/2"	325	ZG3/4"	89	AZ-350	AZ-350
400	377	1200	280	240	100	400	100	320	100	1000	430	ZG1/2"	325	ZG3/4"	89	AZ-400	AZ-400
500	426	1300	300	300	120	430	120	320	120	1100	480	ZG1/2"	377	ZG3/4"	89	AZ-500	AZ-500
600	529	1420	320	300	120	480	120	340	120	1180	530	ZG1/2"	426	ZG3/4"	89	AZ-600	AZ-600
700	630	1550	340	300	120	540	120	340	120	1310	580	ZG1/2"	529	ZG3/4"	89	AZ-700	AZ-700
800	720	1680	360	300	120	580	120	340	120	1440	640	ZG1/2"	529	ZG3/4"	89	AZ-800	AZ-800
900	820	1800	380	300	120	640	120	340	120	1560	680	ZG1/2"	620	ZG3/4"	89	AZ-900	AZ-900

10 DBB VALVE



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
Design Temperature	-20°C ~ 120°C (Meet customer requirements.)
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°C ~ +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°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.

Parameters Table

Size	PN25					PN40				
	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	Φ813*12	1060	370	1400	990

Size	PN64					PN100				
	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: OCEEC)



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



Iraq 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