

Company Introduction

Shenyang EMT Piggig Technology Co., Ltd. was founded in 2004 has developed to a science and technology development enterprise that combines science development, product development, production, sales and service together as a whole. The meters, instruments and equipment developed have been widely used in petroleum, power, chemical, liquor-making, metallurgy, mechanical industries. Our institute has professional R&D, sales, site and after service staffs with strong strength of R&D, development, production and installation.

The LQCZ-series intelligent digital pipe scraper and set equipment ,SN-series dosing system, JYJ-series insolated connector and flange, SNT-series receiving and sending cylinders; SNC-series pressure transmitter, SNM-series quick-opening blind plate, SNQ-series intelligent turbulent fluid washing device, UFZ-series double-color floater digital level indicator, BYSN-series pressure level meter transmitter and other products have been recognized as “ qualified products” by Shenyang Technical and Quality Supervision Institute. Above products have been used long-term by Daqing oil field and Liaohe oil field with stable performance, reliable quality, has received coherent good comments from the customers.

Our institute’s concept is: survive by quality, develop by R&D.

Through strengthening company management, improving product's quality and service, our institute strictly follows GB/T19901-2000idt IS09001:2000 quality management system performs national standard and enterprise manufacture standards.

Our institute would like to cooperate with the domestic and overseas old and new customers honest honestly, jointly making progress, and create the beautiful future together with the principle technology leading, quality first, reputation priority, sufficient service.

Pipeline Cleaning Pig

Work process

Taking the Pipeline Cleaning Pig outside diameter as the reference, the smaller diameter is the front and the bigger one is at the back. The out range of the pipeline cleaning pig and the pipe inter wall are flexibly sealed, putting pipeline cleaning pig in the front edge of pipe will work for or in the pig launcher. Taking air, liquid or the medium that transmitted by the pipe as the driven force, pushing pipeline cleaning pig ahead in the pipeline(also called pipe) to the other end of the pipeline or collector.

Purpose

1. Cleaning up the ponded water, clean oil, loosen iron oxide and etc.
2. Cleaning up the accumulated wax, soft dirt and etc.
3. Cleaning up the sediment, ponded water, residue and etc.
4. Cleaning up the mud and etc.
5. Testing if the pipeline deformation rate is above 10%.
6. After cleaning up the pipeline, the pressure losses of the transmitted medium become minimize
7. Using more than 2 sets pipe scrape.
 - (1) Using nitrogen as the isolated air, using natural gas to exchange the air;
 - (2) Transmitting 2 different liquid mediums in isolation.

Product Features

The pipeline cleaning pig and set equipment produced by or institute has the features of good wearing resistance, strong passing ability, good cleaning performance, accurate locating and trailing, low wrong reporting rate and etc.

Applicable Condition

- Elbow curve radius $R \geq 1.5D$ (Pipeline nominal diameter ≥ 150)
 $R \geq 2.5D$ (Pipeline nominal diameter ≤ 100)
- Pipeline medium temperature T: $-40\text{ }^{\circ}\text{C} \leq T \leq 90\text{ }^{\circ}\text{C}$
- Equal-diameter T-junction of piping should have spherical grate
- Pipeline's deformation rate is not bigger than 10%
- The main pipe line should use ball valve
- Metal or non-metal pipeline that can ender take the pressure after cleaning
- Putting right directional cover in the flexible compensation parts

LCQZ-CZ CUP Pipeline Cleaning Pig



Structure

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

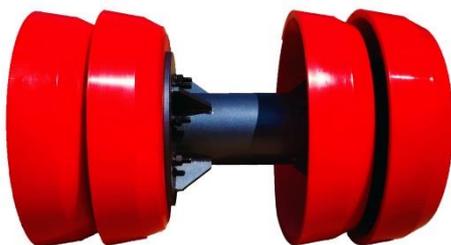
LCQZ-CZ-I Cup Pipeline Pigs



Performance

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

LCQZ-CZ-II Cup Pipeline Pigs



Application

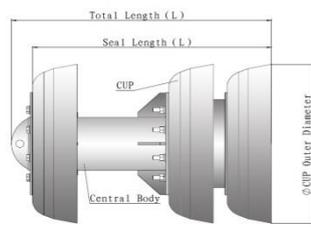
It is applied to pigging before production, cleaning the stones, wood bars and other matters left in the pipeline.
Cleaning and nitrogen replacement after natural gas lines go into operation.
Exhaust before water pressure test and drainage after the test.
Segregate medium insulation within mixed pipelines.

LCQZ-CZ-III Cup Pipeline Pigs

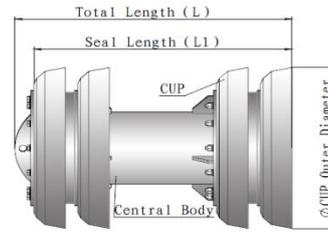
Medium applied

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

LCQZ-CZ CUP Pipeline Cleaning Pig



Type II



Type III

Illustration

1. Minimum elbow radius range(mm): minimum elbow radius DN50:8DN, DN65:4DN, DN80-DN 100:2.5DN, above DN150:1.5DN(DN--pipeline nominal diameter)
2. For nominal diameter DN50-DN100, 2 leather cups are used, related parameters see type 2 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 | 117 | □ | 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 |

LCQZ-CX Rust-Remover Pipeline Cleaning Pig



LCQZ-CX Rust-Remover Pipeline Pigs

Structure

- Cleaning pig rust remover has a steel main body.
- Come with 2—4 sealing cups , and a steel brush wheel in the front part .
- Electronic positioning transmitter can be carried with

Performance

- Good sealing property
- Excellent scraping capability of steel wheel
- Effective running distance is within 100 miles
- Best running speed is 1-3m/s

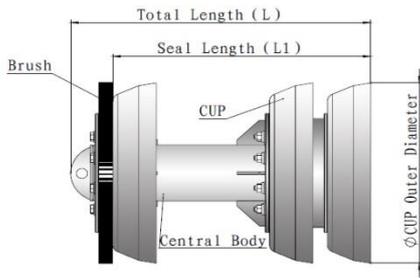
Application

- Cleaning the new-built pipeline
- Remove rust and clean before coating in the pipeline
- Remove rust and clean before repairing the pipeline
- Paraffin removal for the pipeline

Medium applied

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

LCQZ-CX Pipeline Cleaning Pig

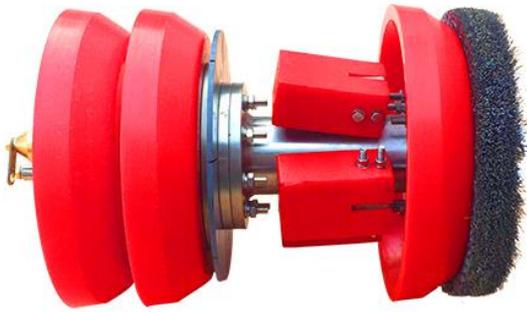


1. Pipeline elbow, applicable medium requires the same as digital pipe scraper;
2. Steel brush size(outside diameter, thickness) is made according to pipeline inter diameter, related parameters see table 2.

Table 2

| Nominal Diameter (DN) | Sealing Diameter (φ) | Pipeline Outside Diameter (φ) | Sealing Length (L1) | Total Length (L) |
|-----------------------|----------------------|-------------------------------|---------------------|------------------|
| 100 | 103.5 | 108 | 140 | 170 |
| 100 | 108.5 | 114 | 140 | 170 |
| 150 | 159 | 159 | 200 | 270 |
| 150 | 168 | 168.3 | 200 | 270 |
| 200 | 219 | 219 | 254 | 302.5 |
| 250 | 273 | 273 | 318 | 373 |
| 300 | 325 | 323.9 | 360 | 439 |
| 300 | 325 | 325 | 360 | 439 |
| 350 | 363 | 355.6 | 435 | 501 |
| 350 | 380 | 377 | 435 | 501 |
| 400 | 410 | 406.4 | 515 | 580 |
| 400 | 426 | 426 | 515 | 580 |
| 450 | 462 | 457 | 523 | 584 |
| 500 | 509 | 508 | 645 | 716 |
| 500 | 542 | 529 | 645 | 716 |
| 550 | 572 | 559 | 710 | 798 |
| 600 | 620 | 610 | 770 | 858 |
| 600 | 640 | 630 | 790 | 900 |
| 650 | 670 | 660 | 840 | 950 |
| 700 | 724 | 711 | 912 | 1014 |
| 750 | 775 | 762 | 980 | 1090 |
| 800 | 824 | 813 | 1041 | 1156 |
| 850 | 880 | 864 | 1100 | 1210 |
| 900 | 944 | 914 | 1120 | 1212 |
| 950 | 990 | 965 | 1270 | 1380 |
| 1000 | 1000 | 1016 | 1350 | 1444 |

LCQZ-MR Magnetic Brush Pipeline Cleaning Pig



LCQZ-MR Magnetic Brush Pipeline Pigs

Feature

The adsorption of Iron rust, welding slag and other gold attribute impurity sundries

- Come with 2—4 sealing cups ,and a steel brush wheel in the front part .
- High strength permanent magnetic steel wrapped in polyurethane.
- Electronic positioning transmitter can be carried with
- Good sealing property
- Effective running distance is within 100 miles
- Best running speed is 1-3m/s
- Mainly used for
 1. Cleaning the new-built pipeline.
 2. Remove rust and clean before coating in the pipeline.
 3. Remove rust and clean before repairing the pipeline.

LCQZ-ZF Disk Bi-Di Pipeline Cleaning Pig



LCQZ-ZF Disk Bi-Di Pipeline Pigs

- DISK bidirectional pipeline cleaning pig is steel framework with 2 support chips, 4-6 sealing disks, can carrying electronic locating transmitter.
- Valid operation distance is within 150kms.
- Best operation speed
1-2m/s (pressure source is liquid)
1-3m/s (pressure source is air)
- Can operate bidirectional.
- Used for pipeline's cleaning, water discharge, water blocking, dielectric isolation and in the river.
- After meet with blocking, increasing the pressure in the opposite direction can back to the original place.

LCQZ—ZF Disk Bi-Di Pipeline Cleaning Pig

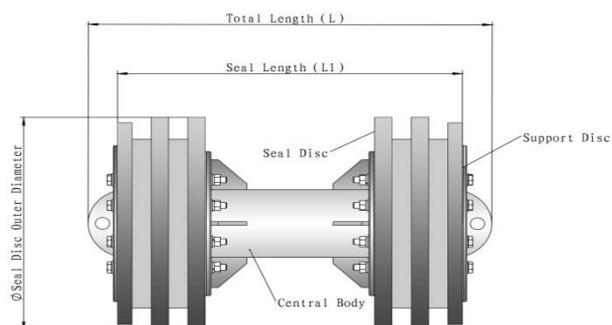


Illustration : Pipeline elbow, applicable medium requires the same as digital pipeline cleaning pig, related parameters see table 3.

Table3

| 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-RT Foam Pig

Foam pig mainly includes soft foam water absorbing pipeline pigs, soft foam glue painted pipe pigs, soft foam steel brush pipe pigs. Soft foam water absorbing pipe scraper is made from polyurethane through foam formation(density 35-200g/m³), its end is painted with polyurethane material, interference range is 3-5%, mainly used for the pipeline's water absorbing, sealing, cleaning, and descaling.



LCQZ-WFP Foam Pigs

Starting pressure: 0.02 MPa
Density: 35 kg/m³ ~200 kg/m³
Withstand pressure: 7 MPa
Stretch rate: 320%
Compression ratio: 60
Flex life: 50,000 times
Attrition rate: 4 mm/100 km
Operating distance: 50 km~150 km
Operating temperature: -30°C~100°C

Starting pressure: 0.03 MPa
Density: 35 kg/m³ ~200 kg/m³
Withstand pressure: 7 MPa
Stretch rate: 320%
Compression ratio: 40
Flex life: 50,000 times
Attrition rate: 2 mm/100 km
Operating distance: 50 km~150 km
Operating temperature: -30°C~100°C



LCQZ-WBFP Foam Pigs



LCQZ-RFP Foam Pigs

Starting pressure: 0.02 MPa
Density: 35 kg/m³ ~200 kg/m³
Withstand pressure: 7 MPa
Stretch rate: 320%
Compression ratio: 50
Flex life: 50,000 times
Attrition rate: 2 mm/100 km
Operating distance: 50 km~300 km
Operating temperature: -30°C~100°C
Illustration: The surface wrapped in polyurethane compare with LCQZ-RTN Foam Pigging

Starting pressure: 0.02 MPa
Density: 35 kg/m³ ~200 kg/m³
Withstand pressure: 7 MPa
Stretch rate: 320%
Compression ratio: 50
Flex life: 50,000 times
Attrition rate: 2 mm/100 km
Operating distance: 50 km~300 km
Operating temperature: -30°C~100°C



LCQZ-RBFP Foam Pigs



LCQZ-RCC Foam Pigs

Starting pressure: 0.02 MPa
Density: 35 kg/m³ ~200 kg/m³
Withstand pressure: 7 MPa
Stretch rate: 320%
Compression ratio: 50
Flex life: 50,000 times
Attrition rate: 2 mm/100 km
Operating distance: 50 km~300 km
Operating temperature: -30°C~100°C
Illustration: The criss cross model has a ability to drying water

LCQZ-FS Transmitter



LCQZ-ZFS Intelligent Digital Transmitter

It is our institute newly researched high-performance product using special integrated circuit and singlechip with more stable frequency and more available(above DN150).

Power Source : 1.2V* 10 chargeable battery pack
3.6V*4 high energy battery

Work Hour : 100-200hours

Installation Size : M64*1.5

Type : L210, L260, L310

Remark : the number after “L” represents transmitter’s effective LCQZ-FS Intelligent Digital Transmitter delivered power.

Using high-power battery pack, the transmitting powder is bigger and longer service hour.

Power Source : 3.6V*4 high energy battery

Work Hour : 100-300hours

Installation Size : Stainless steel sealing is
M64*1.5

Type : L210, L260, L310

Remark : same as above



LCQZ-DFS High-power Transmitter



LCQZ-TFS General Used Transmitter

Applying chargeable battery pack, rechargeable (above DN300)

Power Source : 1.2V* 10 chargeable battery pack

Work Hour : 50 hours

Installation Size : M64*1.5

Type : L210, L260

Remark : same as above

LCQZ-JS Smart Tracking and Positioning 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



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 10000 m, 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 pipe line is buried over 3m, the ground receives weak signal. When using DN80, and buried over 1.5m, the ground receives weak signal.

