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SHENZHEN WOTEC CO,. LTD

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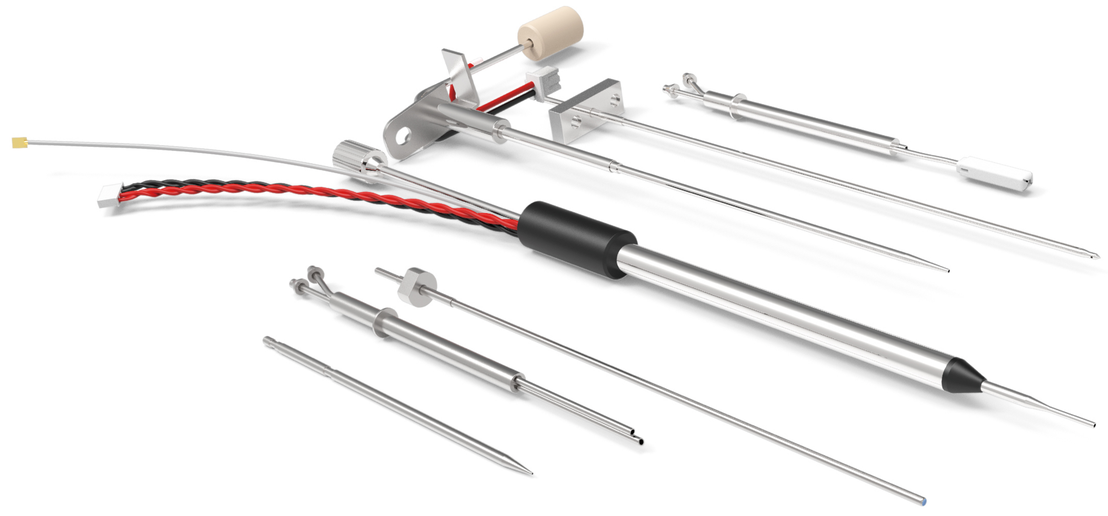
SHENZHEN WOTEC CO,. LTD

Add: The 4th Floor.Building 12#,Rundongsheng Industrial Zone,
Tenglong Community,Xixiang Street,Baoan District,Shenzhen
Tel: 0755-27572026 27572117 27588087
Fax: 0755-27588780
Zip: 518101
Web: Http://www.wontec.com.cn
E-mail: wontec@wontec.com.cn
sz-just@163.com



Specialising in medical motion module solutions

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Specialising in medical motion module solutions

COMPANY PROFILE

Wontec dedicated to the meticulous integration of various transmission products, for the medical equipment, automation industry to provide quality andcost-effective products, for the customer's R & D selection to provide one-stop service.

catalogues

MEDICAL SAMPLING NEEDLES

①Scrubbing Needle ②Puncture Sampling Needle
③Sample Filling Needle (with heating) ④Sample Filling Needle
⑤Open Sampling Needle ⑥Inspiration Needle ⑦Sample Needle

Wontec Technology has internal polishing and bending and spinning technologies for SUS tubes of various sizes, and can meet the various requirements of users for the production of sampling needles and other such products.

PRODUCT ADVANTAGES

Sampling and cleaning needles for chemiluminescence,

blood cells, biochemical analysers, urine analysers and other equipment.

Materials available: 304, 316L, pure titanium.

The interior is lean ground with fluid polishing equipment to achieve a mirror finish.

To reduce residue, the needle tip portion can be made reducer.

Specification sheet (material 316L)			
SERIAL NUMBER	(OD*ID)	SERIAL NUMBER	(OD*ID)
1	0.7*0.4	25	1.8*1.3
2	0.8*0.6	26	1.8*1.5
3	1.0*0.7	27	1.9*1.4
4	1.02*0.3	28	2.0*0.2
5	1.1*0.8	29	2.0*0.3
6	1.2*0.3	30	2.0*0.61
7	1.2*0.8	31	2.0*0.81
8	1.3*0.9	32	2.0*1.0
9	1.4*1.0	33	2.0*1.2
10	1.5*0.7	34	2.0*1.37
11	1.5*1.12	35	2.0*1.4
12	1.5*1.21	36	2.0*1.5
13	1.6*0.51	37	2.0*1.6
14	1.6*0.56	38	2.4*1.8
15	1.6*0.58	39	2.5*1.50
16	1.6*0.76	40	2.4*1.8
17	1.6*0.79	41	2.5*1.52
18	1.6*1.0	42	2.5*1.9
19	1.6*1.2	43	2.5*2.00
20	1.6*1.4	44	2.53*0.65
21	1.7*1.4	45	2.7*2.2
22	1.7*1.5	46	3.0*1.5
23	1.75*1.0	47	3.0*2.0
24	1.75*1.5	48	

Cleaning Needles

Biochemical scrubbing needle\drying needle;

The material of the needle tube is imported 316L;

The inner wall is fluid polished, Ra0.4 ~ Ra0.02 optional;

Laser welding, neat and beautiful;

Heating Needle

Full range from 100ul to 300ul can be customised;

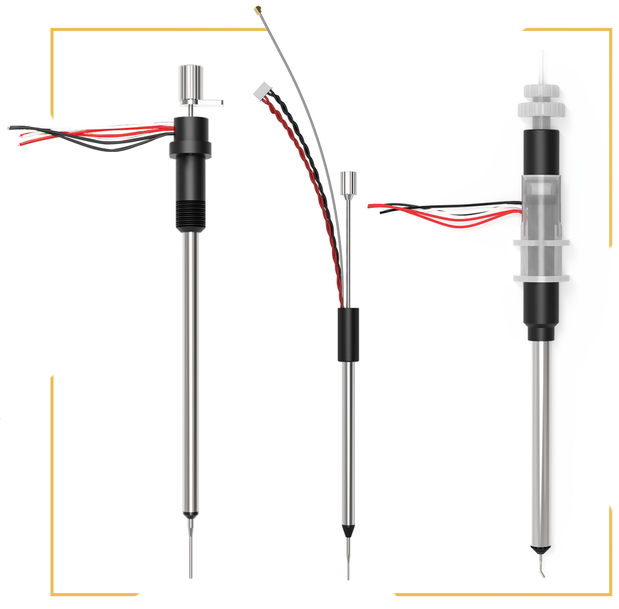
Stable heating body, space-saving;

Japanese standard 316L material,

Inner and outer wall roughness are Ra0.05 or less;

102 ℃ self-fusing fuse, NTC-type thermistor (PB7-43-01);

Recommended heating resistance value of 12, 24 (Ω)



Spiking Needle

Chemiluminescence instrument spiking needle;

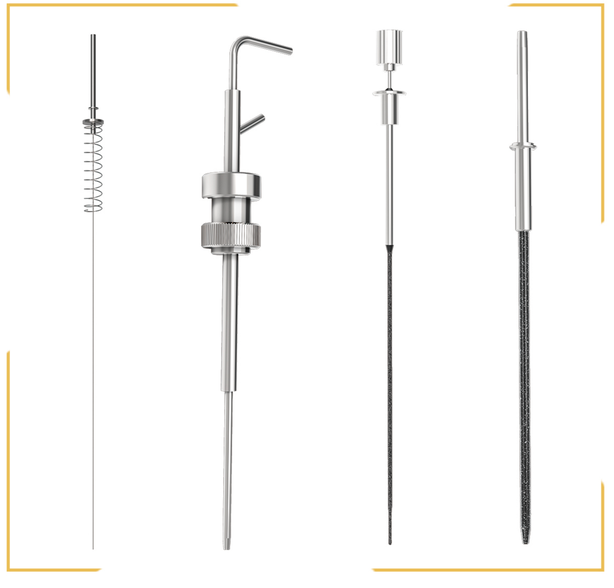
The material of the needle tube is imported 316L, the connector PEEK;

The inner wall is polished with fluid, Ra0.1 ~ Ra0.01 is optional;

The tip of the V-type reducer, the angle is optional, non-welded;

The configuration of the liquid level detecting line;

The inner and outer walls of the needle can be made of super-hydrophobic treatment;



Sampling Needle

Open sampling needles;

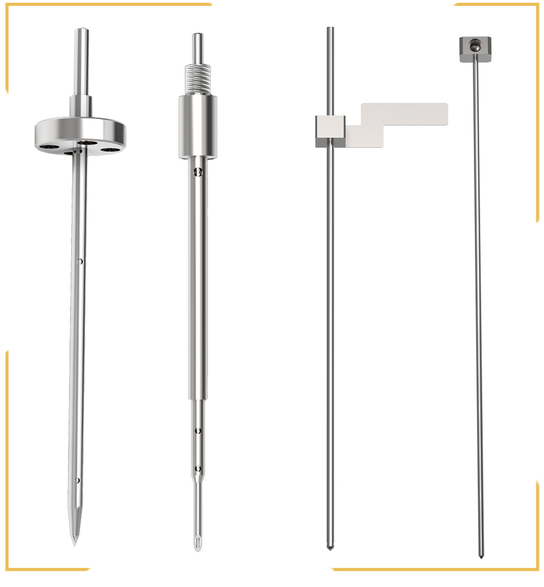
The material of the needle tube is imported 316L;

The inner wall is polished by fluid, Ra0.4 ~ Ra0.06 is optional;

The surface can be Teflon coated, friction-resistant,

Acid and alkali-resistant, and increase the service life;

The side holes are processed by mirror discharge, no burr;



Puncture Needle

Puncture function sampling needles.

Sidewalls with pressure relief grooves;

The material of the needle tube is imported 316L;

The inner wall is polished with fluid, Ra0.4 ~ Ra0.02 is optional;

Laser welding, neat and beautiful;

Hypodermic Needle

Biochemical aspiration needle;

The material of the needle tube is imported 316L;

The inner wall is polished with fluid, Ra0.4 ~ Ra0.04 is optional;

The pagoda head is laser welded, firm and beautiful;

The inner and outer walls of the needle can be made superhydrophobic treatment;

Stylet

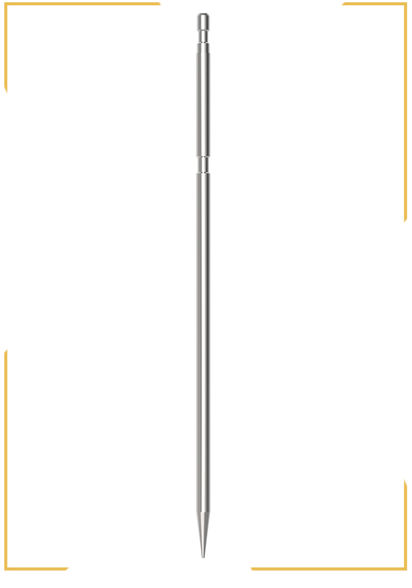
Hematocrit Sample Needle;

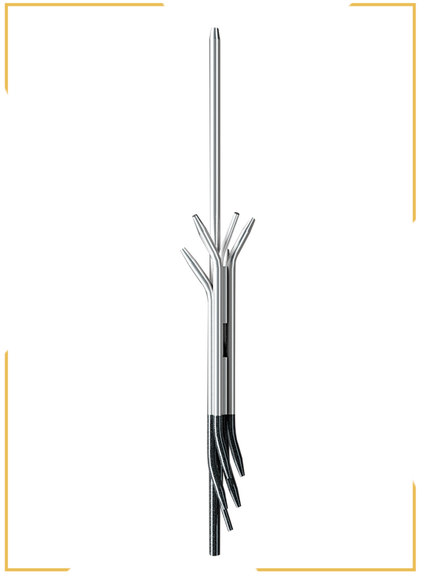
The material of the needle tube is imported 316L;

The inner wall is fluid polished, Ra0.4 ~ Ra0.06 is optional;

Two specifications of 2x0.3 and 1.2x0.3 are always available;

The tip of the needle is finely ground and processed,
and the injection coaxial is not bifurcated;





Staining Needle

The material of needle tube is imported 316L;

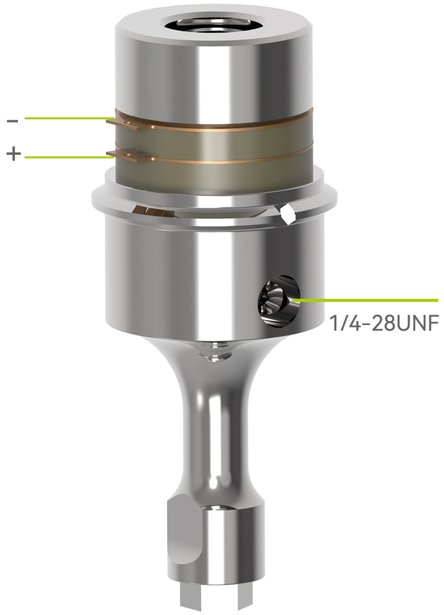
The surface can be Teflon coated, friction-resistant,
acid and alkali resistant;

The tip of the one-piece or welded optional;

The side holes of the mirror discharge machining, burr-free;

ULTRASONIC NEEDLE

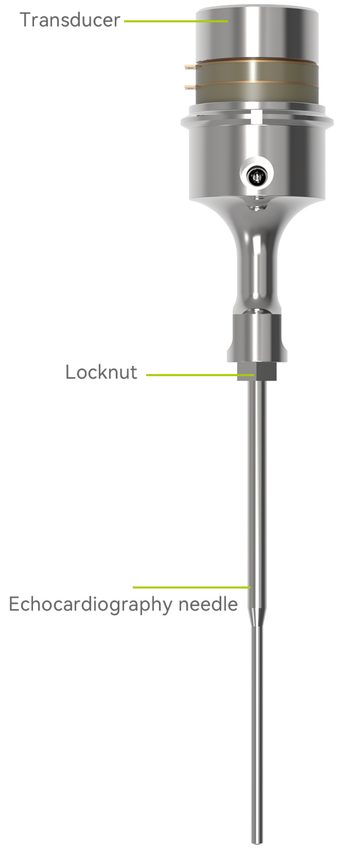
TECHNICAL INTRODUCTION



PRODUCT ADVANTAGES

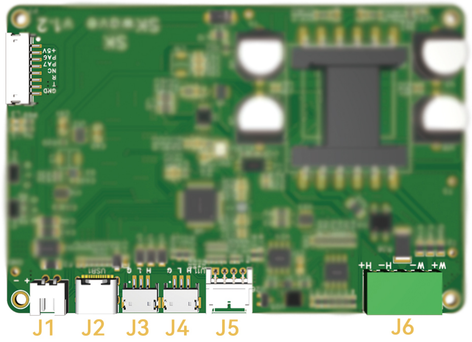
- A new generation of 32-bit ARM technology,
- Cost-effective, good smoothness, low noise, low vibration;
- Using a variety of communication interfaces: CAN, RS485, IO;
- All-digital control; LED result indication;
- Wide range of adaptable frequency;
- Frequency tracking function;

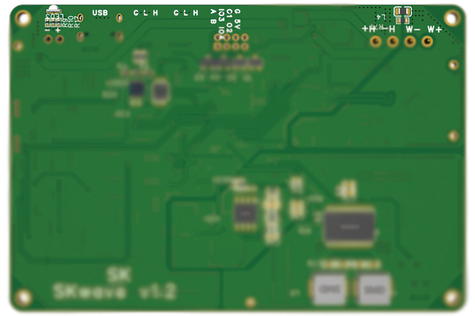
Ultrasonic needle is a device that can be used for biological samples mixing, crushing and other processing, as well as extraction and delivery. It uses self-developed ultrasonic transducer uniquely designed amplitude rod and ultrasonic needle, ultrasonic needle in contact with the sample liquid, the ultrasonic high-frequency ultrasonic waves emitted in the liquid can produce mechanical oscillation and cavitation, so that solutions, emulsions, suspensions and other samples of liquids ultrasonic dispersion, ultrasonic mixing, ultrasonic stirring, ultrasonic crushing, etc.; at the same time, there is an interface between the amplitude rod and the ultrasonic needle and standard diagnostic field of infusion pipeline connection, can be easily and quickly integrated into the customer's existing diagnostic equipment. At the same time, there are interfaces on the amplifier rod and the ultrasonic needle to connect with standard diagnostic infusion lines, which can be easily and quickly integrated into customers' existing diagnostic instruments.

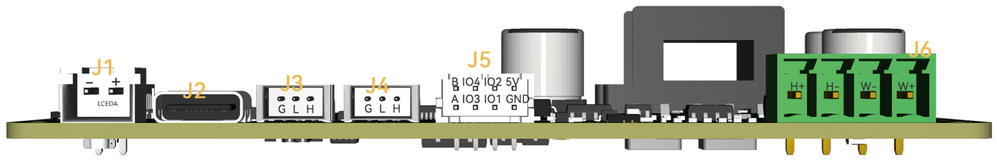


ULTRASOUND DRIVER BOARD

TECHNICAL INTRODUCTION







Connector	Pin	Name	Pin Description
Power supply J1	Pin1	+	VCC power supply, 12~24V
	Pin2	-	GND power ground
USB-C J2	Pin1	USB	USB communication interface
CAN bus communication J3-J4	Pin1	CAN-H	CAN bus H-terminal
	Pin2	CAN-L	CAN bus L-terminal
	Pin3	GND	CAN bus reference ground
RS485 bus communication J5	Pin1	GND	Grounding terminal
	Pin2	5V	5V power supply (output)
	Pin3	IO1	Liquid level output/needle impact output
	Pin4	IO2	NC
	Pin5	IO3	NC
	Pin6	IO4	NC
	Pin7	A	RS485 bus A terminal
	Pin8	B	RS485 bus B-side
Ultrasonic needle J6	Pin1	W+	Positive drive
	Pin2	W-	Negative drive
	Pin3	H-	NC
	Pin4	H+	NC

PIPE WITH MIRROR-POLISHED INNER WALL

TECHNICAL INTRODUCTION

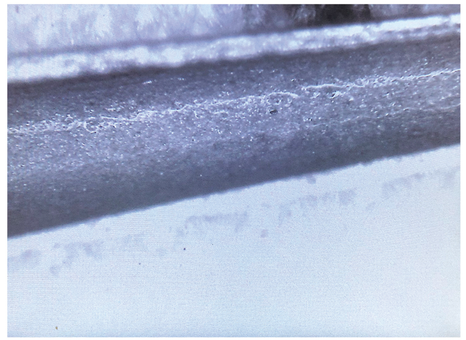
- **Highly clean tubes for our customers**

Tubes used for analytical testing must have a high degree of cleanliness, especially capillary tubing, which is difficult to remove once impurities have been retained in the inner wall. Winchen Technology provides customers with high-standard tubing through management of the tube-making stage and precision polishing at a later stage.

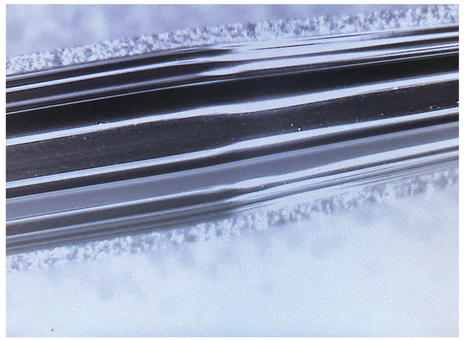
- **Further improvement of internal wall finish**

Thanks to the project of Shenzhen Science and Innovation Commission 'Re-2019N045 Key Technology Research and Development of High Precision Sampling Needle for High-end IVD Equipment', our company undertook the technical research of capillary wall polishing, and the mid-term evaluation of the project was passed in 2021, and the technical indexes of our company's inner wall polishing have already exceeded the preset target of the project.

Regarding internal wall polishing, Watson Technology has made the following comparisons

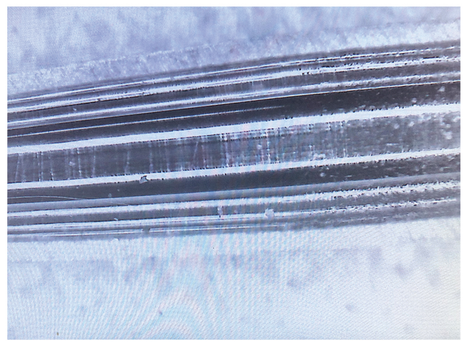


Original Tubing

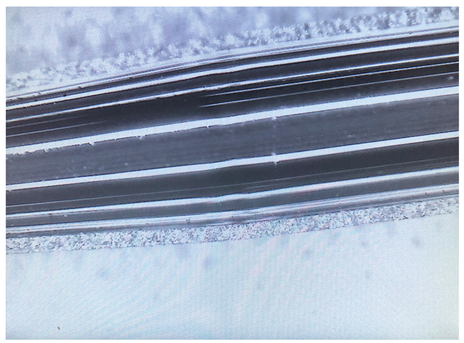


After polishing the inner wall

- Inner wall polishing
- Wontec Technology applies different inner wall polishing techniques to mirror polish straight and variable diameter tubes with different inner diameters, including ultra-fine thin-walled syringes with an inner diameter of 0.1mmm, which can also achieve Ra



Imported samples



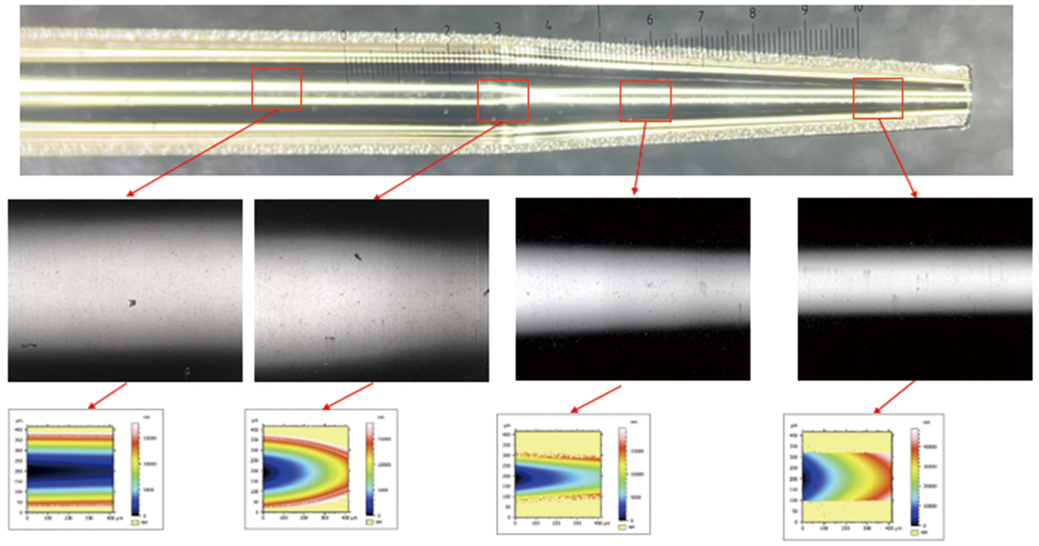
Wontec

- Product Comparison
- Imported reducer samples are compared with the internal polishing of the reducers produced by Wontec.

COMPARISON OF INNER WALL POLISHING

TECHNICAL INTRODUCTION

(C202500004301-01) 316L Internal Needle Internal Surface Quality Testing



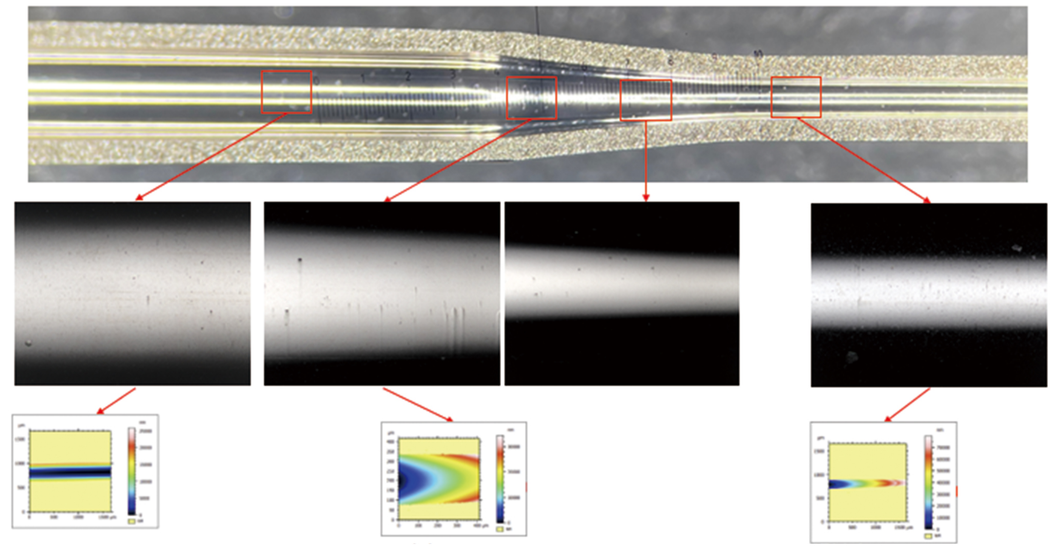
roughness
Ra 0.00260μm(2.60nm)

roughness
Ra 0.0175μm(17.5nm)

roughness
Ra 0.0105μm(10.5nm)

roughness
Ra 0.0358μm(35.8nm)

(WT10001004) 316L Internal Needle Internal Surface Quality Testing



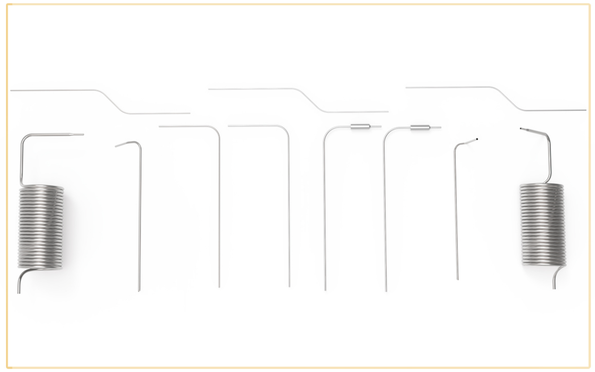
roughness
Ra 0.00585μm(5.85nm)

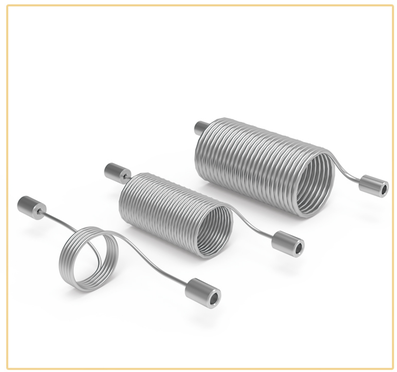
roughness
Ra 0.0391μm(39.1nm)

roughness
Ra 0.0388μm(38.8nm)

bending

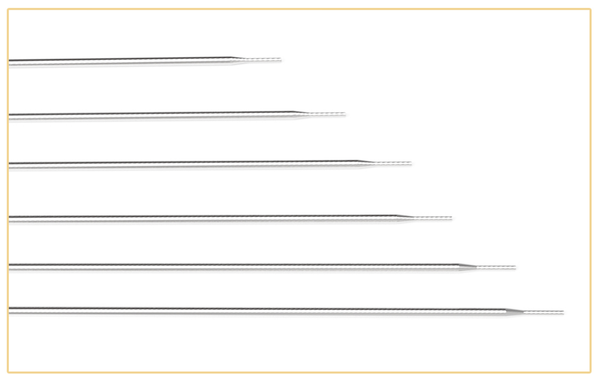
- The flattening rate is below 1/10, and the fluid flow performance is better guaranteed.
- Various shapes such as right-angle, wave and ring can be processed.
- The inner wall polished tubing can also be processed for bending.

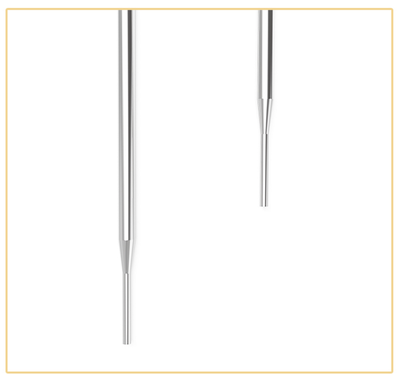




Reduction processing

- The tip of the needle after spinning processing can reduce the hanging liquid, which is conducive to the effect of micro-dispensing.
  Forging angle: 6~30 degrees optional;
  multiple spinning: tube ID Φ0.8mm → tube ID 0.15mm after processing;
- One spinning, two spinning and other step forging processing method.
- The angle of the spinning part can be customised.
- Spinning is also possible for pipes with polished inner surfaces.





Tip processing

- Needle processing used to puncture rubber bottle caps to draw up reagents.
- The tip closure type is designed to prevent clogging of the needle hole caused by debris generated during the piercing process.
- The tip closure can be made into a one-piece moulding to reduce weld residue.

Spin processing

- By giving the stainless steel needle body part of the groove processing, in order to facilitate in piercing the plastic bottle cap,
- The container inside and outside the air pressure to achieve the effect of balance.
- Size of the groove body: about 0.3mm wide x 0.3mm deep;
- The depth of the groove should be less than the wall thickness of the needle body by more than 0.15mm.

SURFACE TREATMENT & PTFE HOSE JOINING

TECHNICAL INTRODUCTION

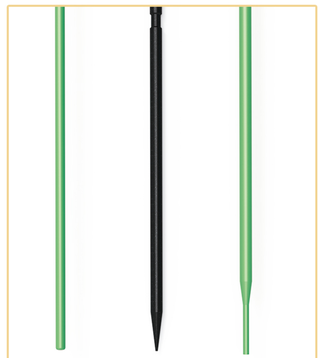
Surface treatment

- The exterior of the tubing can be PTFE coated or metal coated.
- The inside of the tubing can be fluorine plated to enhance hydrophobicity and reduce cross-contamination.
- Metal plating can increase the surface hardness and corrosion resistance of the needle body.

- Two types of Teflon coatings are recommended for different purposes and applications such as waterproofing, insulation, heat resistance, and tightness:
  - Black: high density, high temperature resistance;
  - Green: excellent insulation;
  - Film thickness: 10μm ~ 30μm;

- Metal plating is mainly surface plated with Cr or CrN.
  Film thickness: 400nm ~ 5μm;
  Recommended film thickness: 2~3μm;

Metal plating

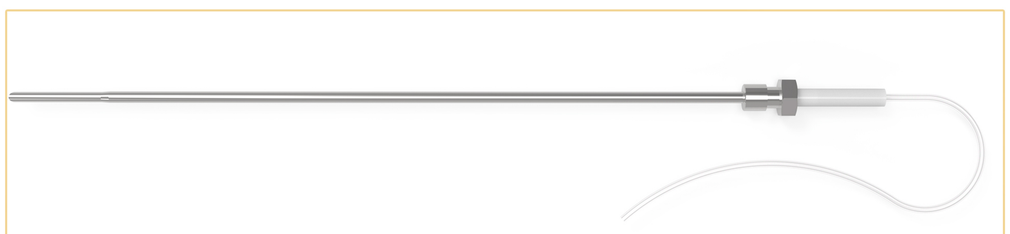


PTFE plating

PTFE Stirring Paddle Plating

PTFE Hose Joining

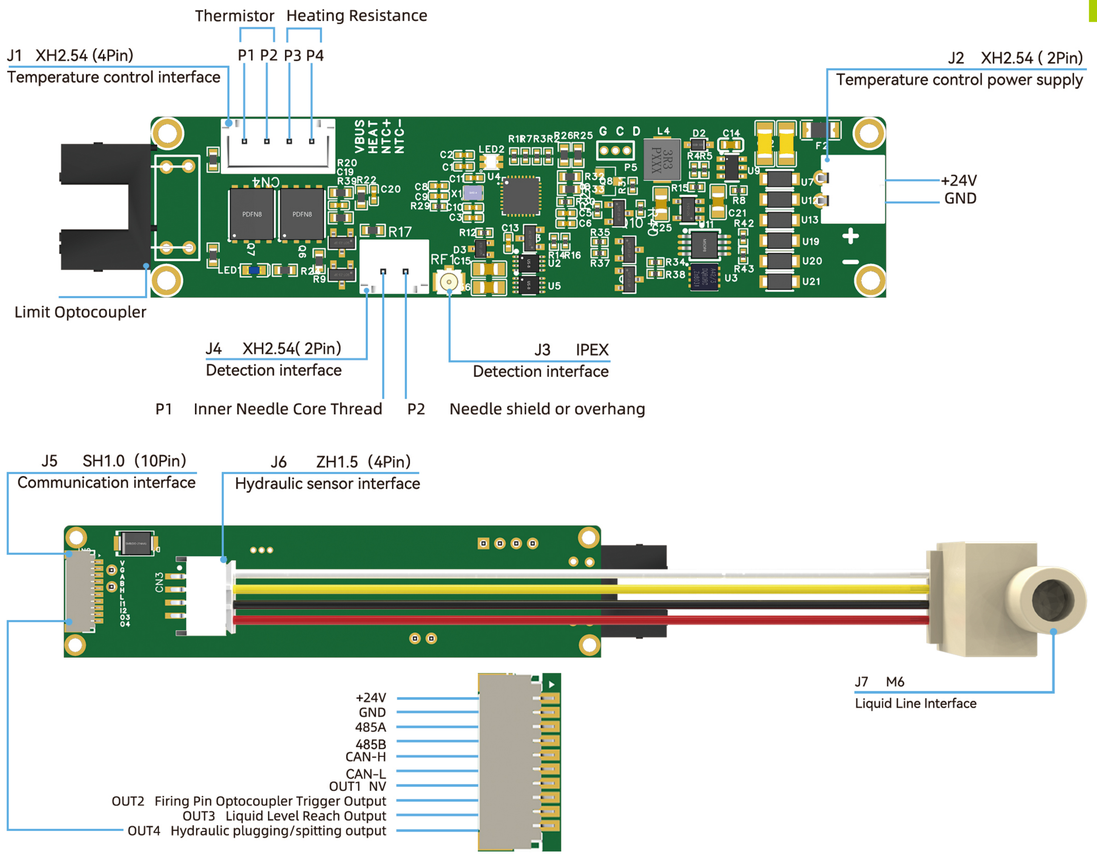
- By inserting a PTFE hose into the inner wall of a metal pipe,
  the same effect of PTFE coating on the inner side of the pipe can be achieved.
- Titanium sampling needles with tubing inserted internally into Teflon hose have both the properties of PTFE and capacitive liquid level detection.
- Through the spinning technology, PTFE hose and outer metal tube interference fit, no gap at the needle tip bonding area, no seepage.



INTEGRATED PIPETTING PROCESS CONTROL BOARD

TECHNICAL INTRODUCTION

User interfacee



User interfacee

- Voltage input: DC24V
- Highly accurate liquid level detection function.
- Needle heating control function, accuracy ±1℃.
- Liquid circuit plugging detection function,
  adjustable suction plugging and spitting plugging thresholds.
- Needle Touch Bottom Anti-collision Function.
- Liquid Level Detection Line is compatible with either XH2.54-2PIN or IPEX inputs.
- Three IO outputs: liquid level trigger signal, needle bottoming signal, liquid line blocking signal.
- Operating temperature: -40 ~ 85℃ (industrial grade).
- Sizes: 91.9mm x 20.2mm x 13.1mm.
- Communication interface: RS485/CAN.

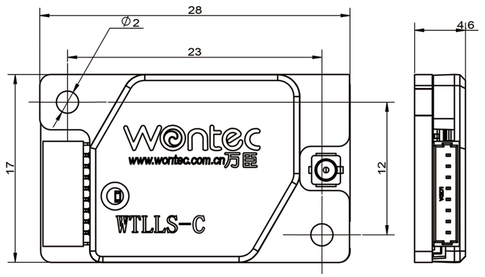
Feedback type liquid level sensor WTLLS-C

Feedback type capacitive liquid level detection, closed loop control is more reliable.

PRODUCT ADVANTAGES

- Voltage input: DC5V.
- Environmental Adaptive Peeling Function.
- Reduced size to 28mm x 17mm x 4.5mm (with case).
- Installation of insulated chassis, ultra-thin body, rugged and durable.
- Power supply power consumption <1W.
- Operating temperature: -40 ~ 85℃ (industrial grade).
- Two level trigger signal outputs, two communication signal outputs.
- Liquid detection accuracy up to 5ul (with media), 20ul in stable use.
- Communication interface: RS485/CAN (can change the sensitivity of the detection level, station number, etc.)

Dimension drawing



After the circuit wiring is completed, the LED indicator light flashes rapidly once after powering on, proving that the wiring is correct. When the liquid level is detected, the indicator light blinks rapidly once, indicating the success of detecting the liquid level.

User interface

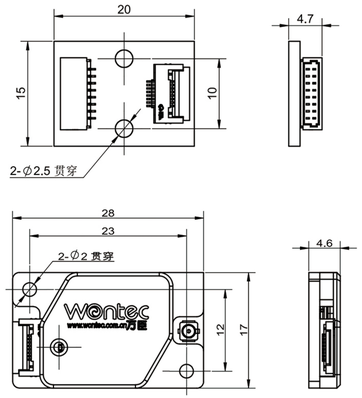
Junction	Pin	Name	Pin Description
Terminal block description	Pin 1	P1	5V:Power supply
	Pin 2	P1	GND:GND
	Pin3	P1	OUT1: Fluidic
	Pin 4	P1	OUT2: Effluent
	Pin 5	P1	485A
	Pin 6	P1	485B
	Pin 7	P1	CAN-L
	Pin 8	P1	CAN-H
	内芯	P2	Liquid Level Detection Line
	外壳	P2	Level Detection Shielded Ground

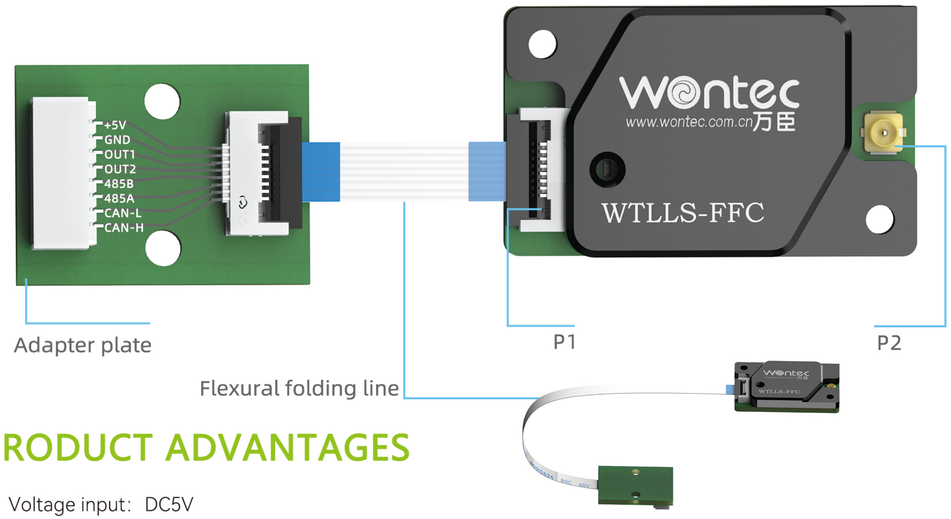
Interface definition

Feedback type liquid level sensor WTLLS-FFC

Feedback type capacitive liquid level detection, closed loop control is more reliable.

Dimension drawing





PRODUCT ADVANTAGES

- Voltage input: DC5V
- Environmental Adaptive Peeling Function
- Reduced size to 28mm x 17mm x 4.5mm (with case)
- Installation of insulated chassis, ultra-thin body, rugged and durable
- Power supply power consumption <1W
- Operating temperature: -40 ~ 85℃ (industrial grade)
- Two level trigger signal outputs, two communication signal outputs
- Liquid detection accuracy up to 5ul (with media), 20ul in stable use.
- Communication interface: RS485/CAN (can change the sensitivity of the detection level, station number, etc.)
- 8Pin flexible FFC, snap-in connector, anti-bending, more space-saving;

LIQUID LEVEL SENSORS

WTLLS-C PRO

Feedback type liquid level sensor

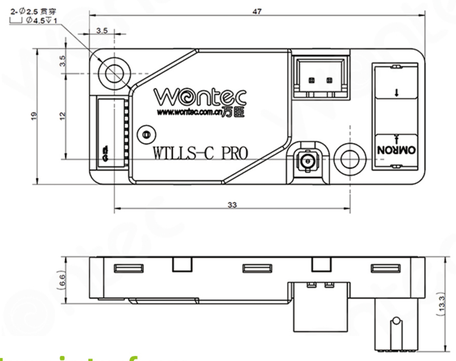
WTLLS-C PRO

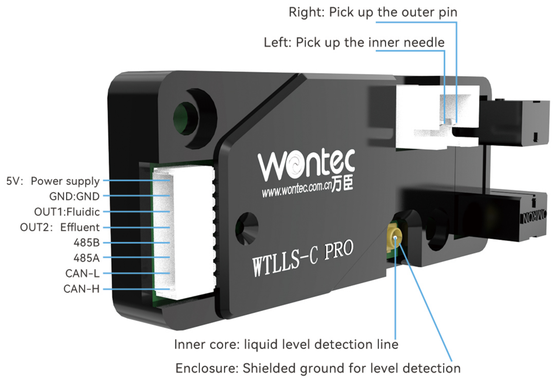
Feedback type capacitive liquid level detection, closed loop control is more reliable.

PRODUCT ADVANTAGES

- Voltage input： DC5V.
- Environmental Adaptive Peeling Function.
- Reduced size to 47mm x 19mm x 13.3mm (with case).
- Installation of insulated chassis, ultra-thin body, rugged and durable.
- Power supply power consumption <1W.
- Operating temperature: -40 ~ 85℃ (industrial grade).
- One level trigger signal output, one anti-bottom signal output.
- Liquid detection accuracy up to 5ul (with media), 20ul in stable use.
- Communication interface: RS485/CAN
  (can change the sensitivity of the detection level, station number, etc.)
- Compatible with XH2.54-2PIN or IPEX input connector.

Dimension drawing



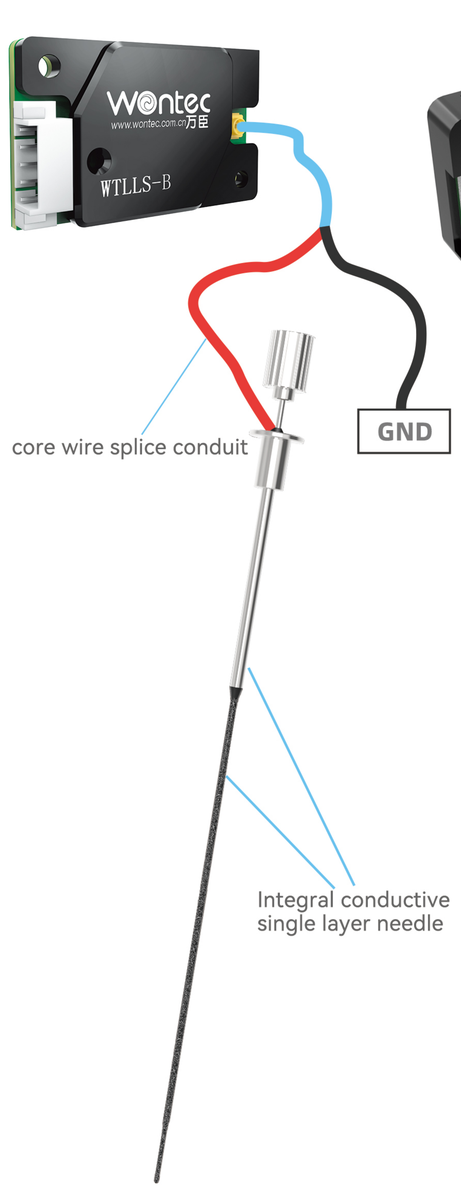


After the circuit wiring is completed, the LED indicator light flashes rapidly once after powering on, proving that the wiring is correct. When the liquid level is detected, the indicator light blinks rapidly once, indicating the success of detecting the liquid level.

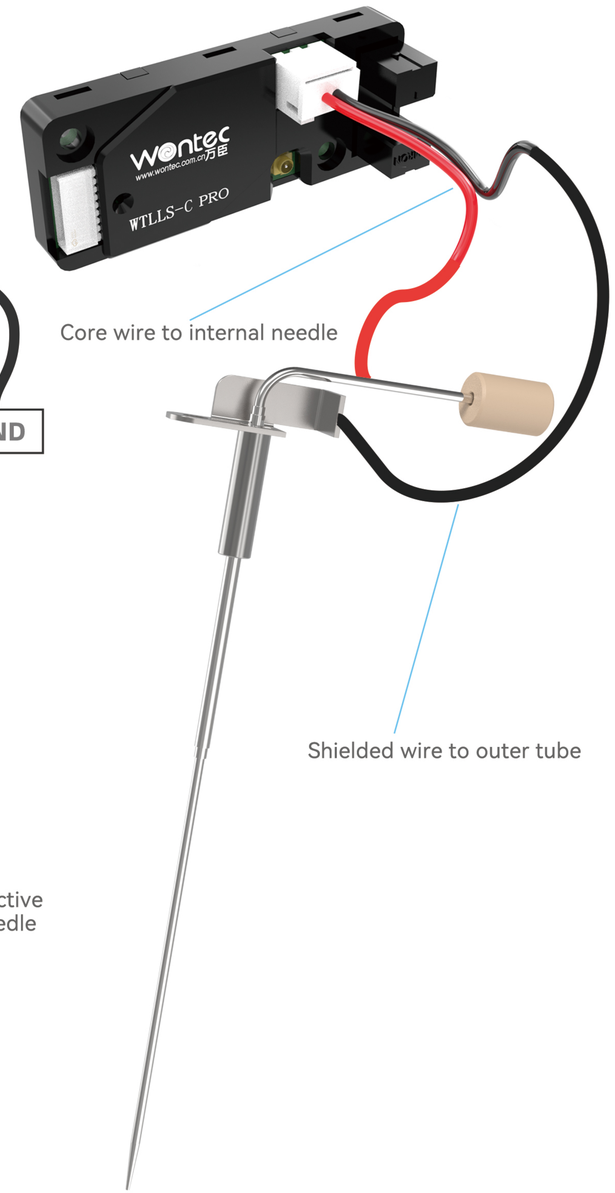
User interface

Junction	Pin	Pin Description
P1 Terminal Description	Pin 1	5V:power supply
	Pin 2	GND:GND
	Pin3	OUT1
	Pin 4	OUT2： Optocoupler output
	Pin 5	485A
	Pin 6	485B
	Pin 7	CAN-L
	Pin 8	CAN-H
P2	inner core	Liquid Level Detection Line
	housings	Liquid Level Detection Shielded Ground
P3	left	internal needle
	right	external needle

TYPICAL WIRING FOR LIQUID LEVEL DETECTION



Single layer pin wiring diagram



Dual-channel wiring diagram