

## Product Information

### CWDZ21CY split explosion-proof temperature transmitter



The CWDZ21CY split explosion-proof temperature transmitter is carefully designed and divided into equipment surface temperature measurement, insertion temperature measurement, and input temperature measurement. Inserting temperature measurement can be combined with our installation accessories to achieve various installation methods for temperature measurement of liquids, gases, solids, and other media. It also has the characteristics of wide temperature measurement range and high accuracy. Equipped with explosion-proof and HART protocol communication options, it offers high cost-effectiveness.

Range: -50~80 °C - 50~100 °C - 50~260 °C - 50~500 °C

-200~100 °C - 200~150 °C

Output: 4~20mA, 4~20mA HART, RS485, Pt100 (1/3B level)

Power supply: 9~32VDC, 13~32VDC, 15~32VDC, 15~24VDC

Accuracy: 0.25% FS, 0.5% FS

In addition, we can also provide customized products that meet the application needs of customers in a short period of time based on their applications.

#### Typical applications

▲ Widely used in various industrial fields

## Instructions

The temperature transmitter CWDZ21CY is suitable for measuring the surface temperature, liquid temperature, and gas temperature of equipment. The operator has the responsibility to verify whether the equipment is suitable for the operating conditions of the application. If you have any questions, please contact our sales department to ensure the correct application of the transmitter. We do not assume any responsibility for the impact caused by improper selection.

## Icon description

⚠ Danger! - A dangerous situation that could result in death or serious injury.

⚠ Warning! - A potentially hazardous situation that could result in death or serious injury.

! Be careful! A potentially hazardous situation that could result in minor injury.

🔔 Reminder! - A potentially hazardous situation that could result in personal injury.

💡 Tips! - Tips and information to ensure trouble free operation of the equipment.

User

⚠ Warning! This information is applicable to technicians

## Product Features

- a) Wide voltage supply, non-linear correction, high precision
- b) Small size, light weight, easy installation
- c) Lightning protection, cutoff interference design, strong anti-interference ability
- d) Reverse protection, current limiting protection

## product overview

The CWDZ21CY series temperature transmitter products use Pt100 (1/3B level) as the signal measuring element, and have undergone computer automatic testing. The laser resistance adjustment process has been used for zero point and sensitivity temperature compensation over a wide temperature range. The amplification circuit converts the sensor signal into a standard output signal, fully utilizing the technical advantages of the sensor, making the CWDZ21CY series temperature transmitter have excellent performance. It is an ideal temperature measuring instrument in the field of industrial automation due to its anti-interference, overload resistance, low temperature drift, high stability, and high measurement accuracy.

## Working principle

The temperature transmitter is a Pt100 sensor that generates a resistance effect under the influence of temperature, which is converted by a dedicated processing unit to produce a differential voltage signal. This signal is then amplified by a dedicated amplifier to convert the signal corresponding to the range into a standard analog or digital signal.

Technical Parameter

Measurement medium: solid, liquid, or gas (compatible with the contact material)  
Temperature range:- 50-80 ℃- 50-100 ℃- 50-260 ℃- 50-500 ℃- 200-100 ℃- 200~150℃  
Measuring components: 1 \* Pt100 (1/3B grade)  
Response time: 18s (compliant with IEC60751, 0.4m/s wind speed, 10 ℃ step)  
Stability performance: ± 0.1% FS/year  
Explosion proof type: Intrinsically safe Ex ia II C T6 Ga (limited to current output only)  
Dust intrinsic safety type Ex ia IIIC T85 ℃ Da (limited to current output only)  
Note: Intrinsic safety must be powered by safety barriers or intrinsic safety power sources  
Connection time: 400ms  
Protection level: IP66 shell, IP68 probe.  
Note: Protection level refers to the level achieved after the electrical connection is complete  
Resolution: Analog output 0.02% FS, digital output 0.1 ℃

Accuracy class

accuracy class range	0.25%FS	0.5%FS
0~100℃	√	√
0~200℃	√	√
0~300℃	√	√
-50~50℃	√	√
-50~100℃	√	√
-50~300℃	√	√
-50~500℃	×	√
-200~150℃	×	√

Header accuracy 0.5% FS (LED with backlight)

Output power supply

power supply output	9~32VDC	13~32VDC	15~32VDC	15~24VDC
4~20mA	no display	×	With display	Intrinsically Safe
RS485	Yes/No Display	×	×	×
4~20mA HART	×	Yes/No Display	×	Intrinsically Safe

Maximum power

power output	≤0.02Us(W)	≤0.015Us(W)
4~20mA	Yes/No Display	
RS485	With display	no display
4~20mA HART	Yes/No Display	

Note: Us=Supply voltage



Output limit

	Output Min	Maximum output
4-20mA	2. 5mA	26mA
RS485	0	3500/7000
4-20mA HART	3. 8mA	22mA

Overall material

Shell: Die cast aluminum  
Display window: ≈ 6mm explosion-proof glass  
Material of protective tube: 304 stainless steel  
Nose material: Carbon steel with nickel plating  
Screw in material: 304 stainless steel  
Magnetic material: Nickel plated carbon steel+High strength magnet Seal: Nitrile rubber  
Cable: XL06 PTFE shielded compensating cable (diameter 3.2mm) with temperature resistance of -200~260 ℃  
XL02 polyurethane shielded compensation cable (diameter 4.7mm) with temperature resistance of -50~100 ℃

Mechanical stability

Anti vibration performance: 10g (20... 2000Hz) complies with IEC60068-2-6 standard  
Impact resistance: 500g/ms complies with IEC60068-2-27 standard

Explosion proof instructions

Intrinsically safe (limited to 4-20mA/4-20mA HART output)

Conforming to standards GB/T3836.1-2021 and GB/T3836.4-2021  
Explosion proof sign: Ex ia II C T6 Ga  
Intrinsic safety parameters: Ui: D28.0V, Ii: 93mA, Ci: 50nF, Hi: uH, Pi: 0.65W.  
Associated equipment parameters:  $U_o \leq U_i$   $I_o \leq I_i$   $P_o \leq P_i$   $C_o=C_c+C_i$   $L_o=L_c+L_i$   $U_o$ ,  $I_o$ ,  $P_o$ ,  $C_o$ ,  $L_o$  are safety barrier parameters, and  $C_c$ ,  $L_c$  are distribution parameters for connecting cables.  
Explosion proof certificate number: CMExC22.41001XG

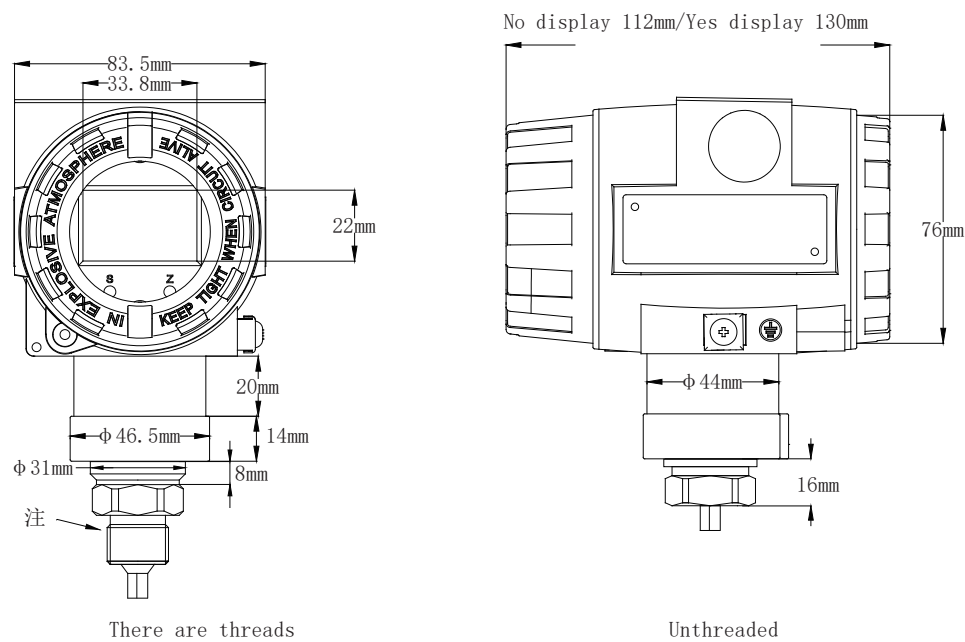
Dust Intrinsically Safe (limited to 4-20mA/4-20mA HART output)

Conforming to standards GB/T3836.1-2021 and GB/T3836.4-2021  
Explosion proof sign: Ex ia IIIC T85 ℃ Da  
Intrinsic safety parameters: Ui: D28.0V, Ii: 93mA, Ci: 50nF, Hi: uH, Pi: 0.65W.  
Associated equipment parameters:  $U_o \leq U_i$   $I_o \leq I_i$   $P_o \leq P_i$   $C_o=C_c+C_i$   $L_o=L_c+L_i$   $U_o$ ,  $I_o$ ,  $P_o$ ,  $C_o$ ,  $L_o$  are safety barrier parameters, and  $C_c$ ,  $L_c$  are distribution parameters for connecting cables.  
Explosion proof certificate number: CMExC22.41001XG



Appearance and size

Main body size

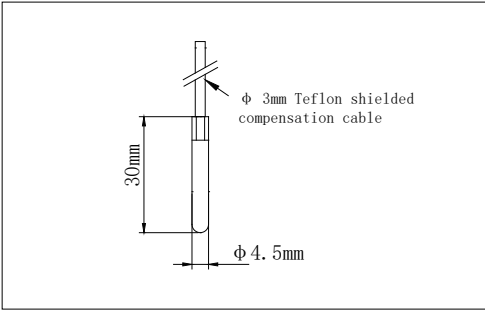


Note 1

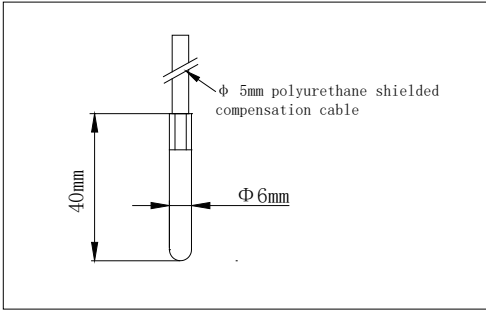
Thread size					
thread specification	M27*2	M20*1.5	G1/2	G1/4	chuck50.5

Probe size

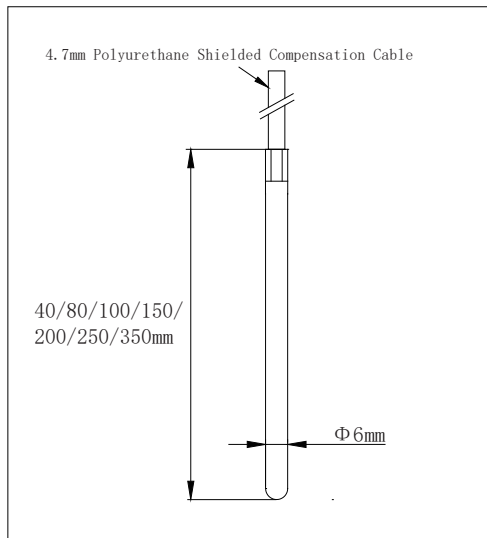
Protective tube type (H)



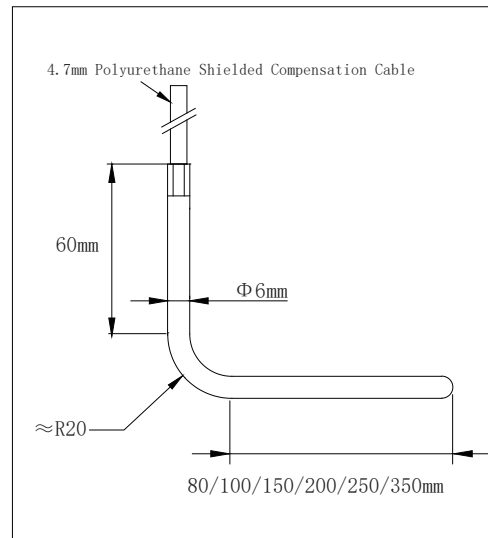
Protective tube type (H1)



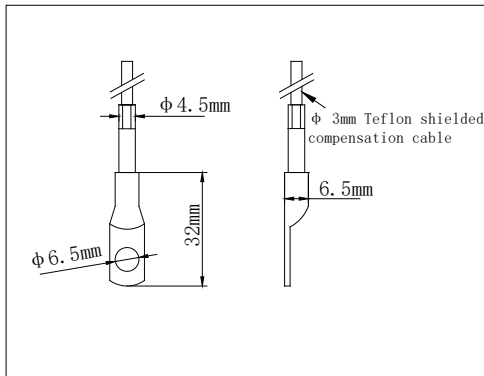
Direct insertion type (ZL)



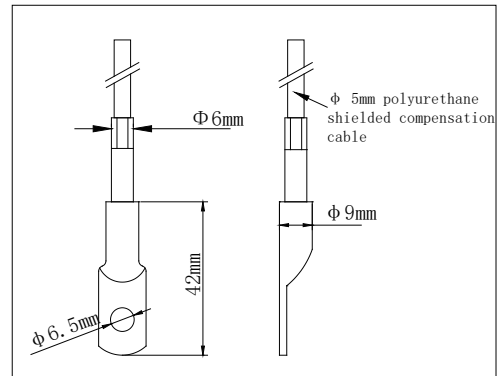
Bent plug-in (WL)



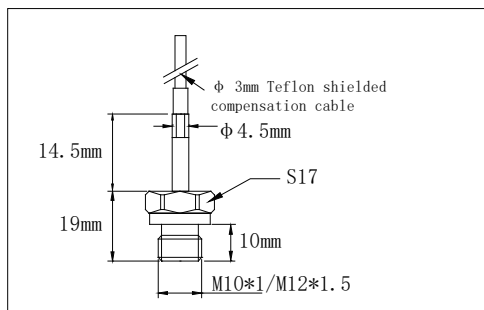
Nose pressing (Y)



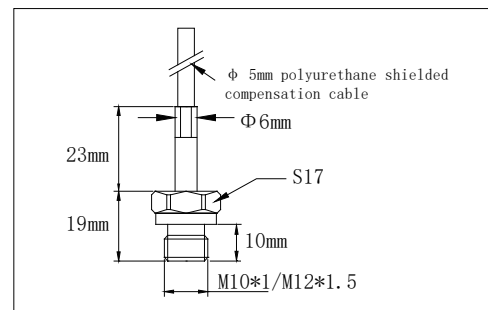
Nose pressing (Y1)



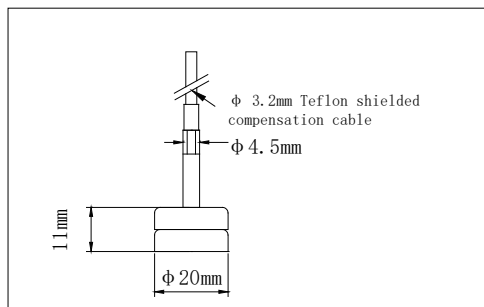
Screw in (X/Z)



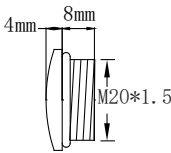
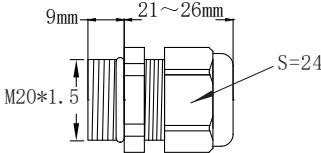
Screw in type (X1/Z1)

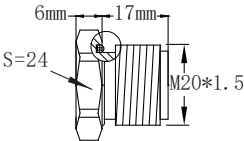
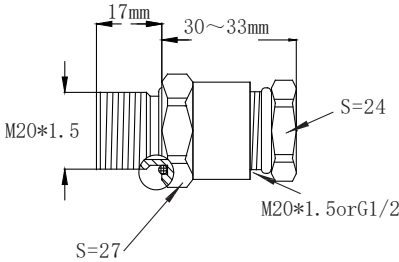


Magnetic suction (c)



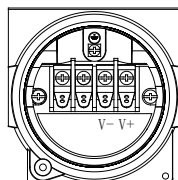
Plug and electrical interface

Applicable standard type and intrinsic safety type	
plug	electrical interface
<div></div> <p>Material: Nylon</p>	<div></div> <p>Material: Nylon Lock wire diameter 5-9mm</p>

Suitable for dust intrinsic safety type	
plug	electrical interface
<div></div> <p>Material: 304 stainless steel</p>	<div></div> <p>Material: 304 stainless steel Lock wire diameter 5-6mm</p>

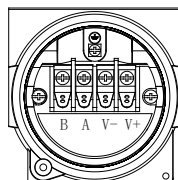
## Wiring diagram

Current output wiring diagram (two wire system)

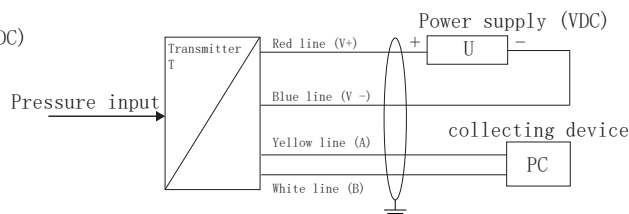
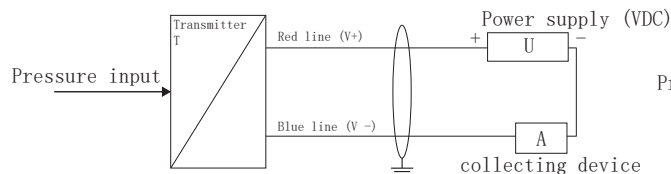


V+: Power supply positive  
V -: Power supply negative

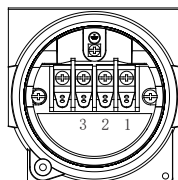
RS485 (Digital Signal) Output Wiring Diagram (Four wire System)



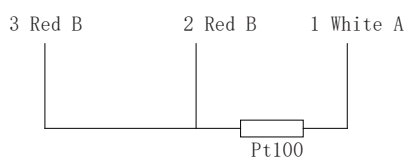
V+: Power supply positive  
V -: Power supply negative  
A : RS485A  
B : RS485B



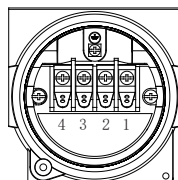
Pt100 Resistance Signal Output Wiring Diagram (Three wire System)



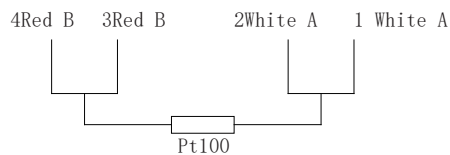
1: White A  
2: Red B  
3: Red B



Pt100 Resistance Signal Output Wiring Diagram (Four wire System)



1: White A  
2: White A  
3: Red B  
4: Red B



☞ Represents a shielded wire, and all marked grounding points must be effectively grounded. It is recommended to choose shielded twisted pair signal cables. In order to avoid grounding loops, the shielding layer adopts single ended grounding, insulated floating grounding at the transmitter end, and grounded at the control cabinet end.

☞ The transmitter casing is grounded by default, so it is required that the on-site equipment be effectively grounded. If the on-site equipment cannot be grounded, the indicated grounding point must be effectively grounded.

Parameter selection

CWDZ	temperature transmitter													
	code	Type of transmitter												
	21CY	Split explosion-proof type (default without electrical connection wires)												
		code	Is there any display											
		P	no display											
		X	With display											
			code	Temperature range										
			15	-50~80℃										
			05	-50~100℃										
			09	-50~260℃										
			07	-50~500℃ (Limited to probe styles ZL direct insertion and WL curved insertion)										
			14	-200~100℃										
			16	-200~150℃										
			DZ	customized										
				code	signal output									
				AI	4-20mA				two-wire					
				HART	4-20mA HART				two-wire					
				RS	RS485 communication interface (standard Modbus RTU protocol) four wire system									
				PT3	Pt100 resistance signal (1/3B level) three wire system									
				PT4	Pt100 resistance signal (1/3B level) four wire system									
				DZ	customized									
					code	Connection method								
					14	M20*1.5 External thread								
					15	M27*2 External thread								
					17	G1/4 External thread								
					19	G1/2 External thread								
					35	chuck (50.5)								
					W	Unthreaded								
					44	customized								
						code	Probe Style (Note 1)							
							Please refer to the attached table of probe styles for details							
							code	Connection line between transmitter and probe						
							L2	2m(default)						
							LX	X:For cable length (e.g L1、L3、L5、L10)						
								code	Supply Voltage					
								G6	9-32VDC					
								G7	13-32VDC					
								G8	15-32VDC					
								G9	15-24VDC (Intrinsic safety specific)					
								No	Pt100 Signal output without power supply					
								DZ	customized					
									code	Explosion proof type				
									B	Intrinsic safety type (limited to current output only)				
									F	The dust intrinsic safety electrical interface is M20 * 1.5 internal thread (limited to current output only)				
									F1	The dust intrinsic safety electrical interface is G1/2 internal thread (limited to current output only)				
									No	Standard type (no explosion-proof)				
										code	accuracy class			
										A	0.25%FS			
										No	0.5%FS			
										DZ	customized			
											code	customized		
											D	Other customization requirements		
											No	convention		
CWDZ	21CY	P	05	AI	14	HI	L2	G6	Example of Selection					
For example: CWDZ21CY-P-05-AI-14-HI-L2-G6 (split type temperature transmitter, no display, range -50~100 ℃, output 4-20mA, connection method M20 * 1.5 external thread, probe style protective tube type Φ 6mm, connecting wire 2m, power supply 9-32VDC, accuracy level 0.5% FS)														
Note 1: If threaded installation is required, please ensure that the probe size can pass through the internal threaded bottom hole.														

Probe Style Appendix

Probe Style Appendix

code	Probe style	Cable temperature resistance
H	Protective tube type	PTFE cable temperature resistance -200~260 ℃
H1	Protective tube type	Polyurethane cable temperature resistance -50~100 ℃
ZL80	Direct insertion with an effective insertion depth of 80mm	Polyurethane cable temperature resistance -50~100 ℃
ZL100	Direct insertion with an effective insertion depth of 100mm	Polyurethane cable temperature resistance -50~100℃
ZL150	Direct insertion with an effective insertion depth of 150mm	Polyurethane cable temperature resistance -50~100℃
ZL200	Direct insertion with an effective insertion depth of 200mm	Polyurethane cable temperature resistance -50~100℃
ZL250	Direct insertion with an effective insertion depth of 250mm	Polyurethane cable temperature resistance -50~100℃
ZL350	Direct insertion with an effective insertion depth of 350mm	Polyurethane cable temperature resistance -50~100℃
WL80	Bent insertion with an effective insertion depth of 80mm	Polyurethane cable temperature resistance -50~100℃
WL100	Bent insertion with an effective insertion depth of 100mm	Polyurethane cable temperature resistance -50~100℃
WL150	Bent insertion with an effective insertion depth of 150mm	Polyurethane cable temperature resistance -50~100℃
WL200	Bent insertion with an effective insertion depth of 200mm	Polyurethane cable temperature resistance -50~100℃
WL250	Bent insertion with an effective insertion depth of 250mm	Polyurethane cable temperature resistance -50~100℃
WL350	Bent insertion with an effective insertion depth of 350mm	Polyurethane cable temperature resistance -50~100℃
C	Magnetic suction	PTFE cable temperature resistance -50~80 ℃
Y	Nose pressure type	PTFE cable temperature resistance -200~260℃
Y1	Nose pressure type	Polyurethane cable temperature resistance -50~100℃
X	Screw in thread M10 * 1	PTFE cable temperature resistance -200~260℃
X1	Screw in thread M10 * 1	Polyurethane cable temperature resistance -50~100℃
Z	Screw in thread M12 * 1.5	PTFE cable temperature resistance -200~260℃
Z1	Screw in thread M12 * 1.5	Polyurethane cable temperature resistance -50~100℃

Ordering Instructions

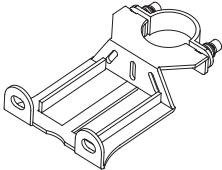
⚠ Warning!  
Users should pay attention to selecting appropriate specifications based on environmental conditions when ordering transmitters.

Ordering information  
Model/Display/Temperature Range/Output Signal/Connection Method/Probe Style/Cable Length/Power Supply Voltage/Explosion proof Type/Accuracy Selection/Customization

Attachment(to be purchased separately)

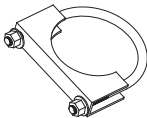
mounting bracket

ZJ03 mounting bracket



Main purpose: transmitter installation

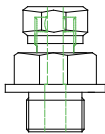
ZJU01 U-shaped card



Main use: pipe support


## Adapter

ZB12 card sleeve adapter



Main purpose: Conversion and fixation

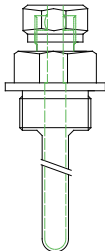
FL01 adapter flange



Function: Transfer and transform

## Bushing

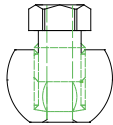
TG02 card sleeve sleeve



Main purpose: Allow for the replacement of temperature sensors during operation  
Reliable protection for high flow rates

## Welding base

WDZ09 Locking Welding Base



Main purpose: Welding of base