M Series

MELT PRESSURE TRANSDUCERS

GEFRAN

- Melt Pressure Transmitters เป็นอุปกรณ์วัดแรงดันในงานที่มีอุณหภูมิสูงถึง 400˚C
- การวัดจะทำได้โดยการเปลี่ยนความตึงให้เป็นสัญญาณทางไฟฟ้าโดยใช้หลักการของ Strain gauge

คุณสมบัติหลัก

- ย่านการวัด : 0-35 ถึง 0-2000 bar / 0-500 ถึง 0-30000 psi
- ความเที่ยงตรง : H < ±0.25% FSO ,M < ±0.5% FSO
- ใช้เกลียวมาตรฐาน 1/2 - 20 UNF , M18x1.5
- ฟังก์ชั่น Auto zero เพื่อช่วยในการตรวจสอบค่าแรงดัน โดยการใช้แม่เหล็กสัมผัสกับตัวส่งที่ตัว melt pressure จะถูกเซทให้เป็น 0 โดยอัตโนมัติ (ME, MN)
- สามารถชดเชยค่าอุณหภูมิของตัวอุปกรณ์ได้ในตัว (MSP)
- วัสดุที่ใช้ผลิต diaphragm เป็นสแตนเลสเบอร์ 15-5 PH (มาตรฐาน) 17-7 PH (100 bar -1500psi) มีความเหนียว แข็ง และทนต่อการกัดกร่อนสูง

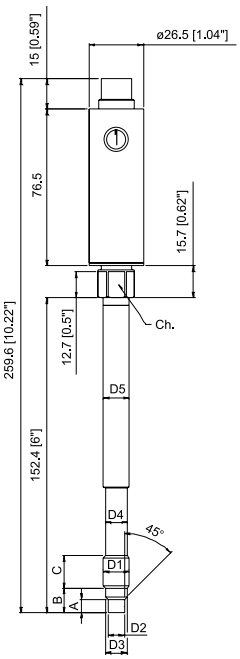
คุณสมบัติทางเทคนิค

Model	MN	ME	M3
Accuracy (1)	H <±0.25%FSO (100...2000 bar)		
	M <±0.5%FSO (35...2000 bar)		
Resolution	Infinite		
Measurement range	0..35 to 0..2000bar		
	0..500 to 0..30000psi		
Maximum overpressure (without degrading performances)	2 x FS 1.5 x FS above 1000bar/15000psi		
Measurement principle	Extensimetric		Strain gage Wheatstone bridge
Power supply	15...30Vdc N, C	10...30Vdc	6..12Vdc (10Vdc typical)
	10...30Vdc B, M		
	-15...+15Vdc H, L		
Strain gage bridge resistance	-		350 Ohm(550 Ohm below
			100bar – 1500psi)
Maximum current absorption	25mA	32mA	-
Insulation resistance (at 50Vdc)	> 1000 MOhm		
Output signal Full Scale (FSO)	5Vdc (M, H) - 10Vdc (N, L)	20mA	2.5 mV/V (option 2) 3.33 mV/V (option 3)
	5,1Vdc (B) - 10,1Vdc (C)		
Zero balance (tollerance ±0.25% FSO)	0Vdc (M, N, H, L)	4mA	±0.5% FSO
	0.1Vdc (B, C)		
Zero signals adjustment (tollerance ±0.25% FSO)	"Auto zero" function		-
Span adjustment within ±5% FSO	See Manual		-
Maximum allowed load	1mA	See diagram	-
Response time (10...90% FSO)	~ 1ms	~ 1ms	-
Output noise (RMS 10-400Hz)	< 0.025% FSO	< 0.025% FSO	-
Calibration signal	80% FSO		
Output short circuit ingress and reverse polarity protection	YES		-
Voltage spike protection	> 2KV burst test, to EN61000-4-4		-
CE conformity (89/336 direttive)	EMC Emissions EN61000-6-3 EMC Immunity EN61000-6-2 (10V/m)		- -
Compensed temperature range	0...+85˚C		0...+100˚C / 32...212˚F
Operating temperature range	-30...+105˚C		-30...+120˚C / -22...250˚F
Storage temperature range	-40...+125˚C		
Thermal drift in compesated range: Zero / Calibration / Sensibility	< 0.02% FSO/˚C		< 0.02% FSO/˚C < 0.01% FSO/˚F
Diaphragm maximum temperature	400˚C / 750˚C		
Zero drift due to change in process temperature (zero)	< 0.02 bar/˚C		0.02 bar/˚C 15 psi/100˚F (Manual)
Zero drift temperature for Autocompensated version (SP) within the temperature range 20˚C-400˚C inclusive the drift temperature of the housing	< 0.003 bar/°C 100 ≤ p < 500 bar 0.0014 %FS/°C p ≥ 500 bar		No
Standard material in contact with process medium	Diaphragm: ● 15-5 PH with GTP coating ● 17-7 PH corrugated diaphragm with GTP coating for ranges <100 bar(1500psi) Stem: ● 17-4 PH		
Thermocouple (model MN2)	STD: type "J" (isolated junction)		
Protection degree (6-pole female connect)	IP65		

Pressure Transmitter

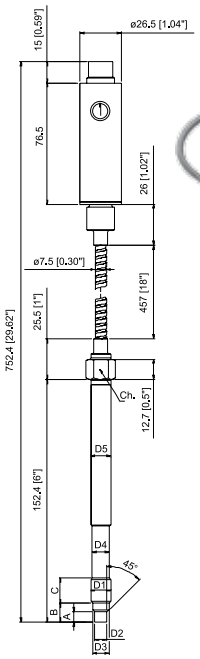
ขนาดและรูปร่าง

M30/ME0/MN0



ประกอบด้วยก้านที่แข็งแรง
และติดตั้งง่าย

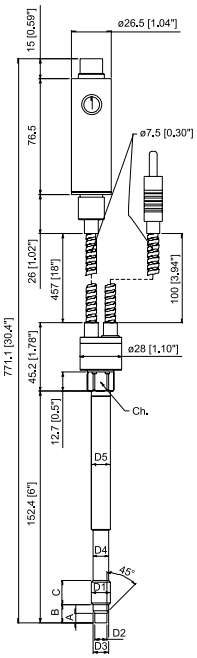
M31/ME1/MN1



การติดตั้งสามารถโค้งงอได้
และถูกออกแบบให้เหมาะกับ
การใช้งานในอุณหภูมิสูง

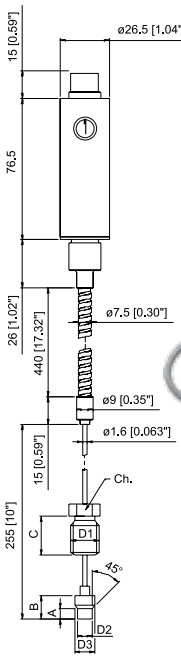
D1	1/2 - 20UNF
D2	ø7.8 -0.05 [ø0.31" -0.002]
D3	ø10.5 -0.025 [ø0.41" -0.001]
D4	ø10.67 [ø0.42"]
D5	ø12.7 [ø0.5"]
A	5.56 -0.26 [0.22" -0.01]
B	11.2 [0.44"]
C	15.74 [0.62"]
Ch [Hex]	16 [5/8"]

M32/ME2/MN2



การวัดความดันและอุณหภูมิ
สามารถวัดได้ในตัวเดียวกัน

M33/ME3/MN3



	Exposed capillary
D1	1/2-20UNF
D2	.307/.305" [7.80/7.75mm]
D3	.414/.412" [10.52/10.46mm]
A	.125/.120" [3.18/3.05mm]
B	.318/.312" [8.08/7.92mm]
C	.81" [20.6mm]

สามารถติดตั้งในพื้นที่แคบๆ

D1	M18x1.5
D2	ø10 -0.05 [ø0.394" -0.002]
D3	ø16 -0.08 [ø0.63" -0.003]
D4	ø16 -0.4 [ø0.63" -0.016]
D5	ø18 [ø0.71"]
A	6 -0.26 [0.24" -0.01]
B	14.8 -0.4 [0.58" -0.016]
C	19 [0.75"]
Ch [Hex]	19 [3/4"]

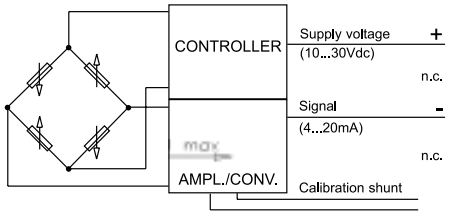
NOTE : dimensions refer to rigid stem length option "4" (153 mm – 6")

WARNING : For installation use a maximum tightening torque of 56 Nm (500 in-lb)

วงจรการต่อใช้งาน

MN/ME Series

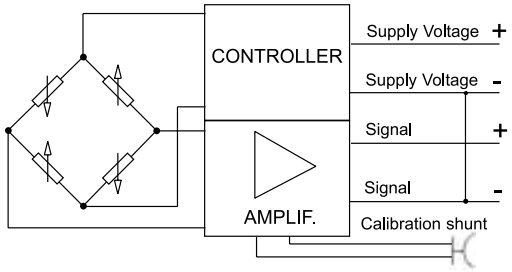
CURRENT OUTPUT (4...20mA, two wires)



MAGNETIC AUTOZERO 6-pin	MAGNETIC AUTOZERO 8-pin		EXTERNAL AUTOZERO 6-pin	EXTERNAL AUTOZERO 8-pin
A	B	Supply voltage + (10...30Vdc)	A	B
C	A	n.c.	C	A
B	D	Signal - (4...20mA)	B	D
D	C	n.c.	D	C
E - F	E - F	Autozero	E - F	E - F
	G - H	n.c.		G - H

Shield drain wire is tied to connector via cable clamp

VOLTAGE OUTPUT (M, N, B, C)
Power supply 15..30Vdc

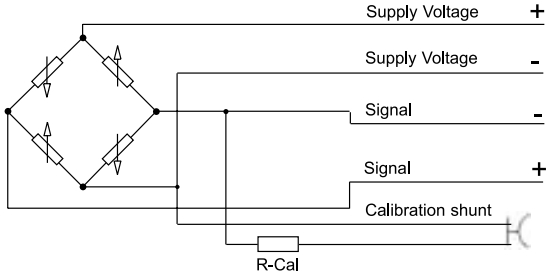


MAGNETIC AUTOZERO 6-pin		EXTERNAL AUTOZERO 6-pin
C	Supply Voltage +	C
D	Supply Voltage -	D
A	Signal +	A
B	Signal -	B
E - F	Autozero	E - F

Shield drain wire is tied to connector via cable clamp

M3 Series

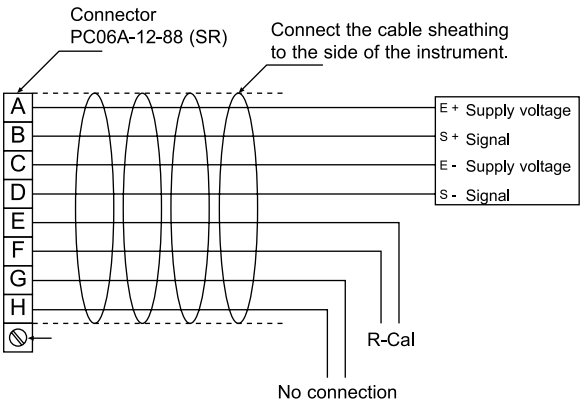
mV/V OUTPUT



6-pin	8-pin
C	A
D	C
B	D
A	B
E - F	E - F
	G - H

Connect the cable sheathing to the side of the instrument.

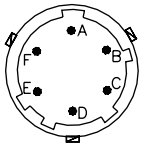
8-pin connector



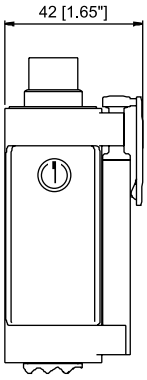
Magnetic Autozero version
A = Excitation + (white)
B = Signal + (red)
C = Excitation - (green)
D = Signal - (black)
E = R-Cal (blue)
F = R-Cal (brown)
G = no connection
H = no connection

External Autozero version
A = Excitation + (white)
B = Signal + (red)
C = Excitation - (green)
D = Signal - (black)
E = Autozero (blue)
F = Autozero (brown)
G = no connection
H = no connection

6 pin connector
VPT07RA10-6PT2
(PT02A-10-6P)



8 pin connector
PC02E-12-8P Bendix



Auto Zero Function
สามารถเซทค่าโดยการ
ใช้แม่เหล็กจากภายนอก

อุปกรณ์เสริม

Connectors	
CON300	6-pin female mating connector
CON307	8-pin female mating connector
CON324	6-pin female mating connector (90°)

Cable + connector assemblies for transducers with mV output	
C08W	6-pin female mating connector (CON300) + 8m cable
C15W	6-pin female mating connector (CON300) + 15m cable
C25W	6-pin female mating connector (CON300) + 25m cable
C30W	6-pin female mating connector (CON300) + 30m cable

Cable + connector assemblies for transmitters with amplified output	
C08WLS	6-pin female mating connector (CON300) + 8m cable
C15WLS	6-pin female mating connector (CON300) + 15m cable
C25WLS	6-pin female mating connector (CON300) + 25m cable
C30WLS	6-pin female mating connector (CON300) + 30m cable

Tools	
SF18	Mounting bracket
SC12	Seal plug for 1/2-20 UNF seat
SC18	Seal plug for M18x1,5 seat
KF12	Drill kit for 1/2-20 UNF seat
KF18	Drill kit for M18x1,5 seat
CT12	Cleaning tool for 1/2-20 UNF seat
CT18	Cleaning tool for M18x1,5 seat

Thermocouples	
TTER718	Type "J" for 153mm stem

วิธีการสั่งซื้อ

M □ □ □ □ □ □ □ □ □ □ □ □ □ □

Auto compensation (*)	SP
Standard	-

(*) available for ranges > to 100bar
(*) not available for version ME3,MN3
(*) not available for version M3,M2

Output signal	
2.5 mV/V	2
3,33 mV/V	3
4...20mA	E
0....5Vdc	M
0...10Vdc	N
0,1...5,1Vdc	B
0,1...10,1Vdc	C
0...5Vdc (supply -15...+15Vdc)	H
0...10Vdc (supply -15...+15Vdc)	L

Version	
Rigid stem	0
Rigid stem + flexible	1
With thermocouple	2
Exposed capillary	3

Connector	
Standard	
6 pin	6
8 pin	8
Available on request	
Cannon WK 6-32S/1	G
Cannon WK 6-32S/2	B

Accuracy	
0,25% FSO (range ≥ 100bar/1500psi)	H
0,5% FSO	M

Measurement range	
bar / psi	
35 / 500	B35U / P05C
50 / 750	B05D / P75D
70 / 1000	B07D / P01M
100 / 1500	B01C / P15C
200 / 3000	B02C / P03M
350 / 5000	B35D / P05M
400 / 5800	B04C / P58C
500 / 7500	B05C / P75C
600 / 8700	B06C / P87C
700 / 10000	B07C / P10M
1000 / 15000	B01M / P15M
1400 / 20000	B14C / P20M
2000 / 30000	B02M / P30M

000 = standard version special or customized versions available on request

E	External auto zero
-	Magnetic auto zero

(*) not available for version M3,M2

Flexible stem length (mm/inches)		
Standard (M30,ME0,MN0)		
0	None	
Standard (M31, M32,ME1,ME2,MN1,MN2)		
D	457mm	18"
E	610mm	24"
F	760mm	30"
Standard (M33,ME3,MN3)		
L	711mm	28"
Available on request		
A	76mm	3"
B	152mm	6"
C	300mm	12"
G	914mm	36"
H	1067mm	42"
I	1220mm	48"
J	1372mm	54"
K	1520mm	60"

Rigid stem length (mm/inches)		
Standard (M30, M31, M32, ME0, ME1, ME2, ME0, ME1, ME2)		
4	153mm	6"
5	318mm	12,5"
Standard (M33,ME3,MN3)		
0	None	
Available on request		
1	38mm	1,5"
2	50mm	2"
3	76mm	3"
6	350mm	14"
7	400mm	16"
8	456mm	18"

Thread	
Standard	
1/2-20 UNF	1
M18 x 1,5	4
Available on request	
M10 x 1	2
M14 x 1,5	3
G3/8	5

Examples

MN2-6-M-B07C-1-4-D-000

Melt pressure transmitter with type "J" thermocouple, 0..10Vdc output, 6-pin connector, 1/2-20UNF thread, 700 bar full scale, 0,5% accuracy class, 153 mm (6") rigid stem, 457mm (18") flexible capillary.

MSPM0-6-M-P03M-1-4-0-000

Melt pressure transmitter autocompensated version, rigid stem, 0..10Vdc output, 6-pin connector, 1/2-20UNF thread, 3000 psi full scale, 0,5% accuracy class, 153 mm (6") rigid stem.

Melt Pressure

ONEhalf20

EXTRUSION MELT PRESSURE TRANSDUCERS & TRANSMITTERS
อุปกรณ์วัดแรงดัน

คุณสมบัติ

- เซนเซอร์วัดแรงดันสำหรับของเหลว ทนอุณหภูมิได้ถึง 400˚C (750˚F)
- เอาต์พุตแบบ 3.3 mV/V 4-20 mA และ 0-10 Vdc
- มาตรฐานการ Calibration 80% ของเอาต์พุตสเกลสูงสุด
- วัสดุทำจากสแตนเลส แข็งแรงทนทานและมีคุณภาพสูง
- วัดแรงดันในอุตสาหกรรมประเภทเครื่องฉีดพลาสติก, อุตสาหกรรมเกี่ยวกับอาหาร และอื่นๆ

ข้อมูลทางเทคนิค

MECHANICAL	
Pressure Ranges	0-1,500 psi to 0-15,000 psi, Metric ranges available
Mounting	1/2-20 UNF thread
	M 18 x 1.5 available
Mounting Torque	500 inch pounds maximum
Diaphragm Material	15-5 PH stainless steel
Overload Capacity	2 times FSO
Temperatures Ratings	Diaphragm 750˚F
	Electronics 225˚F
Accuracy	General Purpose < .5% FSO
	Laboratory < 25% FSO
Repeatability	Better than .15% FSO

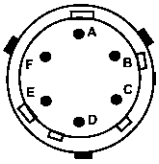
ELECTRICAL	
Type	Bonded Strain Gage, 4 Leg Wheatstone Brigde
Bridge Resistance	350Ohm ±5%
Connector	6 Pin Bendix Type
Output	3.3 mV/V, 4-20 mA or 0-10 Vdc
Excitation Voltage	mV/V 10 Vdc
	4-20 mA 24 Vdc
	0-10 Vdc 25 Vdc
Internal Calibration	80% of Full Scale Output
Insulation Resistance	1,000 MOhms @ 50 Vdc
Interconnecting Cable	25' with Matin Connector
Repeatability	Better than .15% FSO

Options

Temperature Output:
Type “X’ or Type ‘W’ thermocouple available
Mounting:
1/2 20 UNF thread, standard
M18 X1.5 available
Rigid Stem Length:
6” standard
3” and 12” rigid stem lengths available
Flex Armor Length:
18”standard
lengths to 36” are available
Calibration:
NIST Traceable Calibration Certificate available

ปลั๊กคอนเนคเตอร์

6 Pin Connector



mA and Volt Output

Pin A/Red	Input/Signal
Pin B/Black	Input/Signal
Pin C/White	No Connection
Pin D/Green	No Connection
Pin E/Blue	Cal
Pin F/Orange	Cal

Excitation 24Vdc

mV/Volt Output

Pin A/Red	Signal
Pin B/Black	Signal
Pin C/White	Input
Pin D/Green	Input
Pin E/Blue	Cal
Pin F/Orange 1	Cal

Excitation 10Vdc

Pressure Transmitter

Melt Pressure

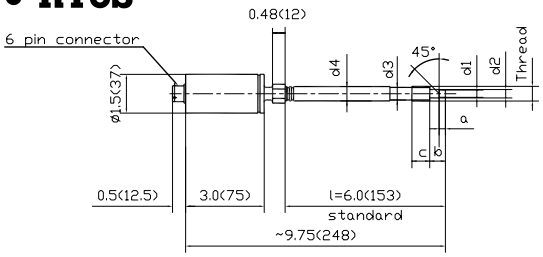
ONEhalf20

EXTRUSION MELT PRESSURE TRANSDUCERS & TRANSMITTERS
อุปกรณ์วัดแรงดัน

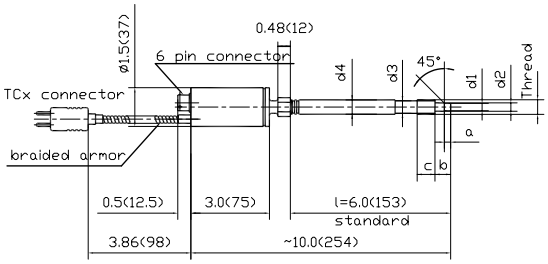
CE

ขนาดและรูปร่าง

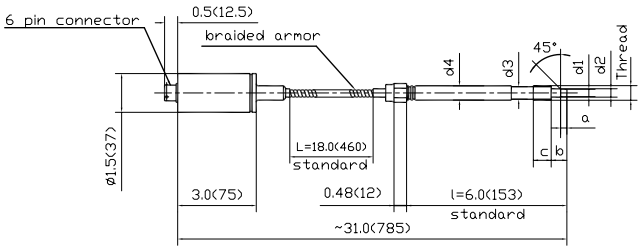
• RT6S



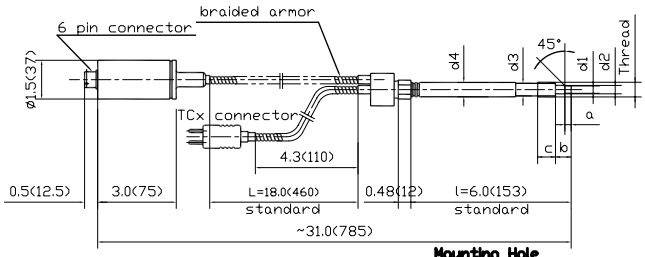
• RT6S-TCx



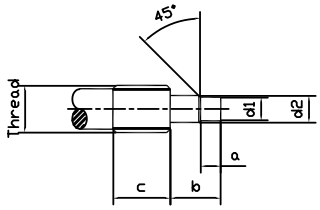
• CT6S

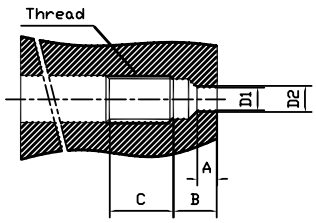


• CT6S-TCx



Mounting Hole





วิธีการสั่งซื้อ

CT | DLX | 6 | S | 3M | TCJ

ELECTRICAL	
CT	Classic style rigid stem with 18” flex amor
RT	Rigid style system only (no flex amor)

SERIES	
None	General purpose grade (0.5% accuracy)
DLX	Laboratory grade (0.25% accuracy)

RIGISD SYSTEM LENGTH	
3	3”
6	6” standard
12	12”

OUTPUT	
S	3.3 mV/V standard
MA	4-20 mA
V	0-10 VDC

PRESSURE RANGE	
1.5M	0-1,500 psi (only available on DLX series)
3M	0-3,000 psi
5M	0-5,000 psi
10M	0-10,000 psi
15M	0-15,000 psi

OPTION	
TCJ	Thermocouple type J
TCK	Thermocouple type K
M18	M18x1.5 metric thread in place of 11/2 20
UNF	
FAxx	Non standard flex amor length (specify in inch)
NIST	Calibration certificate

Thread	d1	d2	a	b	c	d3	d4
1/2" - 20	ϕ0.307(7.8)	ϕ0.413(10.5)	0.217(5.5)	0.441(11.2)	0.629(16)	ϕ0.41(10.5)	ϕ0.5(12.7)
	ϕ0.303(7.7)	ϕ0.407(10.35)	0.211(5.35)	0.433(11.0)			
M14x1.5	ϕ0.307(7.8)	ϕ0.465(11.8)	0.217(5.5)	0.441(11.2)	0.708(18)	ϕ0.47(12.0)	ϕ0.54(13.7)
	ϕ0.303(7.7)	ϕ0.457(11.6)	0.211(5.35)	0.433(11.0)			
M18x1.5	ϕ0.394(10.0)	ϕ0.610(15.5)	0.236(6.0)	0.551(14.0)	0.787(20)	ϕ0.63(16.0)	ϕ0.669(17.0)
	ϕ0.386(9.8)	ϕ0.602(15.3)	0.230(5.85)	0.543(13.8)			

Thread	D1	D2	A	B	C
1/2" - 20	ϕ0.314(7.98)	ϕ0.458(11.65)	0.225(5.72)	0.395(10.02)	0.75(19)
	ϕ0.312(7.92)	ϕ0.452(11.47)			
M14x1.5	ϕ0.314(7.98)	ϕ0.512(13.0)	0.225(5.72)	0.395(10.02)	0.827(21)
	ϕ0.312(7.92)	ϕ0.504(12.8)			
M18x1.5	ϕ0.401(10.19)	ϕ0.638(16.2)	0.242(6.15)	0.402(10.15)	1.00(25.4)
	ϕ0.399(10.13)	ϕ0.634(16.1)			