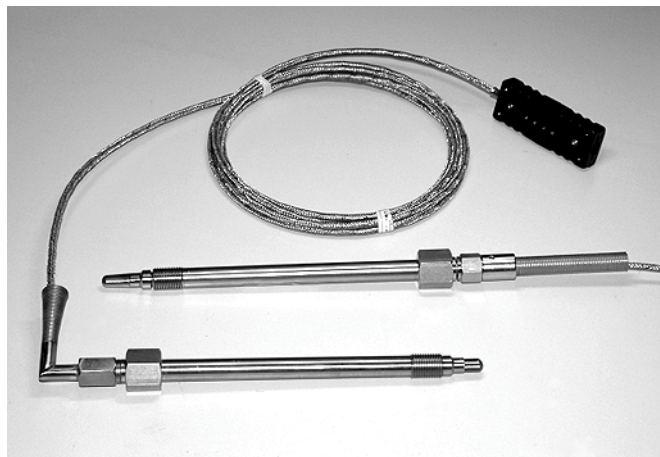




INNOVATION FOR EFFICIENCY

Operating Manual Melt Temperature Sensor

DYMT



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1. Contents

	Page	
1	Contents	3
2	Technical data	4
3	Instructions	6
3.1	Product description	6
3.2	General instructions	6
3.3	Safety instructions	7
3.3.1	Hazard points	7
3.3.2	Disposal	7
4	Assembly / installation / disassembly	8
4.1	Storage	8
4.2	Packaging and transport	8
4.3	Installation instructions	8
4.4	Assembly / commissioning	8
4.5	Disassembly	11
4.6	Safety features	11
4.7	Value tables	11
4.7.1	Base values Pt 100 in accordance w. DIN EN 60751	11
4.7.2	Base values of the thermal voltages in mV	12
5	Manufacturer's Declarations	13
5.1	Resistance thermometer	13
5.2	Type "J" thermocouple	14
5.3	Type "K" thermocouple	15

2. Technical data

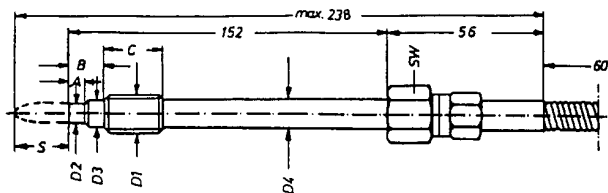
Thread	1/2"-20 UNF, M18 x 1.5 or M14 x 1.5
Stem length	152 mm standard, other lengths on request
Blade length	2.5 - 3.0 mm, as requested by customer
Material in contact with the medium	15-5 PH SST mat. no. 1.4545 Coatings on request
Max. medium temp.	350°C

Electrical data:

Thermocouple	J, K, L, other types on request
RTD	can be connected as 2-, 3-, or 4-wire
Connector	IEC connector for thermocouple DIN connector for Pt100 element
Line outlet	Straight or angled 90°
Cable length	75mm, other lengths on request Use in Ex area is possible with suitable supply and analysis devices.

Dimensions:

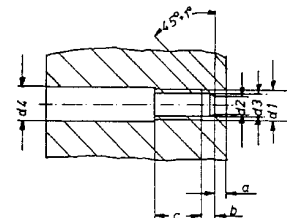
Melt Temperature Sensor



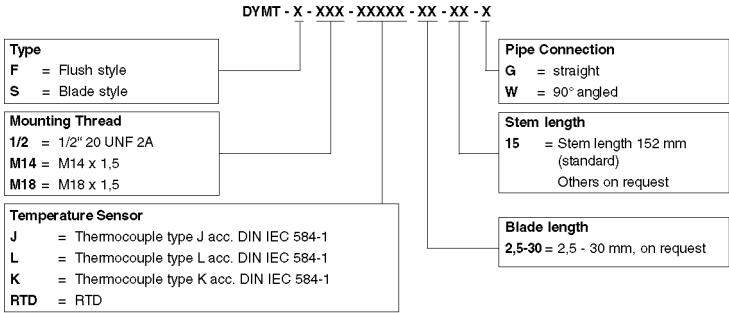
D1	D2	D3	D4	A	B	C	SW
M14 x 1,5	8 ^{-0,05}	12 ^{-0,1}	12 ^{-0,5}	6 ^{-0,25}	12	20	19
M18 x 1,5	10 ^{-0,05}	16 ^{-0,1}	16 ^{-0,5}	6 ^{-0,25}	14	20	19
1/2-20UNF-2A	7,8 ^{-0,05}	10,5 ^{-0,05}	11 ^{-0,5}	5,3 ^{+0,25}	11	16	19

Mounting Hole

D1	D2	D3	D4	A	B	C
M14 x 1,5	8,1 ^{+0,05}	12,1 ^{+0,1}	16	6,15 min.	4 max.	25
M18 x 1,5	10,1 ^{+0,05}	16,3 ^{+0,2}	20	6,15 min.	4 max.	25
1/2-20UNF-2A	7,92 ^{+0,05}	11,5 ^{+0,1}	13	5,7 min.	3,2 max.	19



Order specifications:



3. Instructions

3.1 Product description

Prescribed use

Melt temperature sensors from Dynisco have been especially developed for melt and core temperature detection in extrusion processes in accordance with customer-specific and industry-specific solutions.

These sensor designs are basically considered to be "medium contacting" temperature sensors.

Due to varying customer requirements and product requirements, today we have a broad spectrum of melt temperature sensors in virtually every conceivable design.

3.2 General instructions

Read this operating manual prior to commissioning the device. Keep this operating manual in a location where it is accessible to all users at any time. Long service life and problem-free operation are only possible if the device is handled properly.



Attention! Incorrect installation/assembly or connection can result in impairment of proper function, or damage to the subsequent process. Consequently safety fixtures that are independent of the device must be present and only specialists should perform the installation.

If, in spite of these precautions, difficulties should occur when commissioning, then we request that you not perform any impermissible operations on the device. Such actions place your guarantee claim in jeopardy! Please contact your responsible sales office or your company representative.

We constantly strive to improve our operating instructions. Please support us in this regard. We would appreciate your suggestions.

3.3 Safety instructions

3.3.1 Hazards



Attention!

A burn hazard exists in the entire area of the heated extruder. There is a hazard of hot medium escaping under high pressure through improper assembly or disassembly of the melt temperature sensor when charging with pressure.

3.3.2 Disposal

The manufacturer can ensure proper and environmentally friendly disposal. Please contact your responsible sales office or your company representative.

4. Assembly / installation / disassembly

4.1 Storage

Storage temperature range: -40°C to +70°C, rel. humidity <95%

4.2 Packaging and transport

In order to achieve optimal measurement results with our sensors, ensure the protective cap remains intact to protect the sensor tip.

Any damage to the sensor can result in incorrect measurements or failure, in addition defects can occur on your machines due to damaged melt temperature sensors.

4.3 Installation instructions

Observe the applicable national regulations when selecting line materials, and for the electrical connection of the device.

The electrical connection should only be executed by specialized personnel.

The devices that bear the CE mark satisfy the requirements of the EU Directive 89/336/EEC "Electromagnetic Compatibility" and the harmonized European standards that are listed there. The EU Declarations of Conformity are available for the responsible authorities in accordance with the aforementioned EU Directive, Article 10.

4.4 Assembly / commissioning

Remove the sensor from the packaging and inspect for transport damage (leave the protective cap in place for all further transport!).

Test for function using an ohm meter, a resistance of 1...20 ohm must be displayed (line dependent) when connecting the thermal line.

For resistance thermometers a value of approximately 108 ohm (+/-5 ohm) must be displayed here.

Verify the dimensions/specification: diameter, sealing area, sword length, thread, and line length

When assembling the melt temperature sensor ensure that the sensor mounting hole corresponds to the dimensions listed on page 10. The fit precision can be checked using a test bolt. Prior to installation heat-resistant grease must be applied to the sensor thread. If the machine part with the receptacle bore is still at production temperature then a warm-up time for the sensor must be taken into consideration. Due to thermal expansion the sensor would be firmly seated. When screwing into place ensure that the sensor is not tilted or does not fall into the hole.

In the final assembly there should be as little cavitation (material residues, material contaminations etc.) as possible, the sensor point should still project into the machine interior. In addition the thread should demonstrate freedom of movement, be free of product remnants, and it should be absolutely clean.

The length of the sensor blade projecting into the melt should always be selected in such a manner that the measuring point is positioned one third of the channel diameter from the inner wall of the channel.

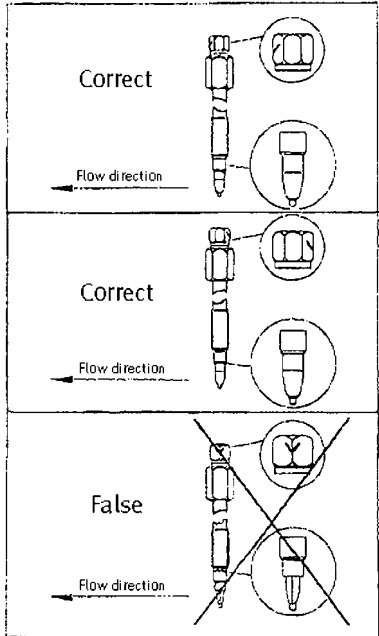
When screwing into place pay attention to the direction arrow on the hexagon (SW14). This arrow indicates the material flow direction and should never be misaligned (sword break for sensors with sword design). Always align the sensor in the direction indicated by the arrow and fix in place with an SW19 (open end wrench) (see illustration below). Tightening torque is approximately 50 Nm

Connect the connecting line to the specified connection terminal, or connect via plug connector.

Check the heat-up phase.

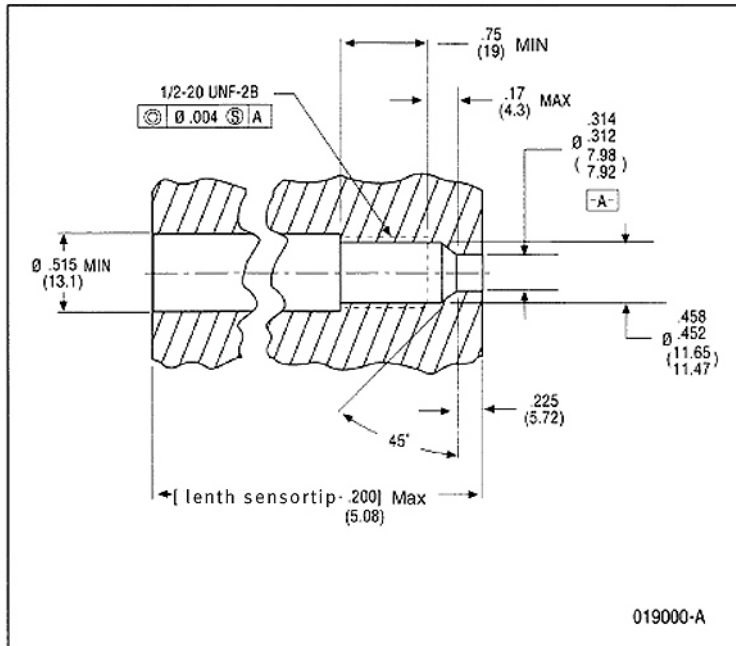


Attention! Do not exceed the maximum specified temperature!

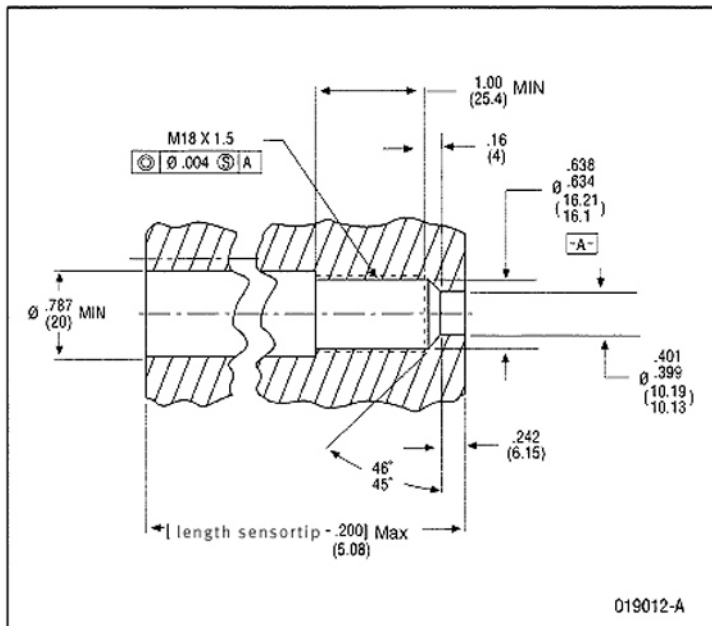


Mounting holes:

Melt temperature sensor with 1/2-20 UNF thread



Melt temperature sensor with M18 x 1.5 thread



4.5 Disassembly

- To remove after operation, the machine must be empty, however it still should be tempered.
- Product remnants must be removed when hot without the use of sharp-edged tools. Any mechanical processing can result in changed operating characteristics.

- Do not use the connection line of the temperature sensors as a transport aid!
- Always place the supplied protective cap on for intermediate storage.
- In order to ensure a production flow without melt temperature sensor, same size sealing bolts are available, if needed.

4.6 Safety features

- Only use proper, intact tools when assembling or disassembling.
- Never loosen or remove the melt temperature sensor during machine operation (hot material could escape under high pressure).
- Always wear suitable protective gloves.
- When assembling and disassembling never kink or twist the connecting line.

4.7 Value tables

4.7.1 Base values Pt100 in accordance with DIN EN 60751

Widerstand und zulässige Abweichung Pt 100					
Meßtemperatur °C	Grundwert Ω	zulässige Abweichung			
		Klasse A		Klasse B	
		Ω	°C	Ω	°C
-200	18,520	±0,238	±0,55	±0,562	±1,30
-100	60,256	±0,142	±0,35	±0,324	±0,80
0	100,000	±0,059	±0,15	±0,117	±0,30
100	138,505	±0,133	±0,35	±0,303	±0,80
200	175,856	±0,202	±0,55	±0,478	±1,30
300	212,051	±0,267	±0,75	±0,641	±1,80
400	247,092	±0,327	±0,95	±0,793	±2,30
500	280,977	±0,383	±1,15	±0,933	±2,80
600	313,708	±0,434	±1,35	±1,061	±3,30
650	329,640	±0,458	±1,45	±1,121	±3,55
700	345,283	-	-	±1,178	±3,80
800	375,704	-	-	±1,283	±4,30
850	390,481	-	-	±1,332	±4,55

4.7.2 Base values of the thermal voltages in mV

Grundwerte der Thermospannungen in mV								
Kurzzeichen des Thermopaars	Fe-CuNi Typ L DIN 43710		Fe-CuNi Typ J DIN EN 60584		Ni-Cr-Ni Typ K DIN EN 60584		Pt-Rh-Pt Typ S DIN EN 60584	
pos. (+) Schenkel	Eisen		Eisen		Nickelchrom		PtRh 90/10 %	
neg. (-) Schenkel	Kupfernickel		Kupfernickel		Nickel		Platin	
Temperatur °C	Grundwerte mV	zulässige Abweichung (Klasse 2)	Grundwerte mV	zulässige Abweichung (Klasse 2)	Grundwerte mV	zulässige Abweichung (Klasse 2)	Grundwerte mV	zulässige Abweichung (Klasse 2)
-200	-8,15	-	-7,890	-	-5,891	-	-	-
-100	-4,75	-	-4,633	-	-3,554	-	-	-
0	0	-	0	-	0	-	0	-
1) +20	1,05	0 °C bis 500 °C ±3 °C	1,019	-40 °C bis 333 °C ±2,5 °C	0,798	-40 °C bis 333 °C ±2,5 °C	0,113	0 °C bis 600 °C ±1,5 °C
1) +50	2,65		2,585		2,023		0,299	
+100	5,37		5,269		4,096		0,646	
+200	10,95		10,779		8,138		1,441	
+300	16,56		16,327		12,209		2,323	
+400	22,16		21,848		16,397		3,259	
+500	27,85	500 °C bis 700 °C ±0,0075 x [t]	27,393	333 °C bis 750 °C ±0,0075 x [t]	20,644	333 °C bis 1200 °C ±0,0075 x [t]	4,233	600 °C bis 1600 °C ±0,0025 x [t]
+600	33,67		33,102		24,905		5,239	
+700	39,72		39,132		29,129		6,275	
+800	46,22		45,494		33,275		7,345	
+900	53,14		-		51,877		-	
+1000			57,953	-	41,276		9,587	
+1100			63,792	-	45,119		10,757	
+1200			69,553	-	48,838		11,951	
+1300					52,410		13,159	
+1400							14,373	
+1500							15,582	
+1600							16,777	
+1700							17,947	-
+1800								

1) Die Thermospannungen dieser Tabelle erniedrigen sich um die hier angegebenen Thermospannungswerte, wenn die Vergleichstellentemperatur 20 °C bzw. 50 °C beträgt

5. Manufacturer's Declarations

5.1 Resistance thermometer

**in accordance with EU Machinery Directive
89/392/EEC, Annex II B**

We hereby declare the temperature sensors delivered to you
do not fall under the Directives listed below.

EMC Directive (89/335/EEC) (in accordance with the
German Electromagnetic Compatibility Act
Section (EMVG §5 S3))

Low Voltage Directive (73/23/EEC)

And fundamentally not under

EU Machinery Directive (89/392/EEC dated June 14th 1989)
including the 1st Amendment Directive (91/368/EEC dated June 20th 1991)
including the 2nd Amendment Directive (93/44/EEC)

Nor do they fall under the listed safety components (Annex IV, Para. B1-5).

Consequently we may not affix the CE mark to these products.

Manufacturer's Declaration:

We declare in sole responsibility,
that the product that we supply

Resistance thermometer

corresponds to the technical information as cited on our datasheet
and the applicable standard DIN EN 60751.

**Moreover we confirm that we manufacture this product according to customer
specifications.**

**We manufacture resistance thermometers in accordance with the requirements
of
DIN EN 60751.**

5.2 Type "J" thermocouple

in accordance with EU Machinery Directive 89/392/EEC, Annex II B

We hereby declare the temperature sensors delivered to you
do not fall under the Directives listed below.

EMC Directive (89/335/EEC) (in accordance with the
German Electromagnetic Compatibility Act Section (EMVG §5 S3))

Low Voltage Directive (73/23/EEC)

And fundamentally not under

EU Machinery Directive (89/392/EEC dated June 14th 1989)
including the 1st Amendment Directive (91/368/EEC dated June 20th 1991)
including the 2nd Amendment Directive (93/44/EEC)

Nor do they fall under the listed safety components (Annex IV, Para. B1-5).

Consequently we may not affix the CE mark to these products.

Manufacturer's Declaration:

We declare in sole responsibility,
that the product that we supply

Type "J" thermocouple

corresponds to the technical information as cited on our datasheet
and the applicable standard DIN EN 60584-1.

**Moreover we confirm that we manufacture this product according to customer
specifications.**

**We manufacture Type "J" thermocouples in accordance with the requirements
of DIN EN 60584-1 (previously IEC548-1), as well as DIN EN 61515 (previously
IEC 1515).**

5.3 Type "K thermocouple

**in accordance with EU Machinery Directive
89/392/EEC, Annex II B**

We hereby declare the temperature sensors delivered to you
do not fall under the Directives listed below.

EMC Directive (89/335/EEC) (in accordance with the
German Electromagnetic Compatibility Act Section (EMVG §5 S3))

Low Voltage Directive (73/23/EEC)

And fundamentally not under

EU Machinery Directive (89/392/EEC dated June 14th 1989)
including the 1st Amendment Directive (91/368/EEC dated June 20th 1991)
including the 2nd Amendment Directive (93/44/EEC)

Nor do they fall under the listed safety components (Annex IV, Para. B1-5).

Consequently we may not affix the CE mark to these products.

Manufacturer's Declaration:

We declare in sole responsibility,
that the product that we supply

Type "K thermocouple

corresponds to the technical information as cited on our datasheet
and the applicable standard DIN EN 60584-1.

**Moreover we confirm that we manufacture this product according to customer
specifications.**

**We manufacture Type "K" thermocouples in accordance with the requirements
of DIN EN 60584-1 (previously IEC548-1), as well as DIN EN 61515 (previously
IEC 1515).**



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