

VÁLVULA TERMOSTÁTICA
INTERRUPTOR TÉRMICO
SENSOR DE TEMPERATURA
PLUG ELETRÔNICO
CHT



THERMOSTAT TEMPERATURE SENDER

THERMOSWITCH TEMPERATURE SENSOR CHT



TEMPERATURE



TEMPERATURE CONTROL SINCE 1957

40 60 80 100 120

WATER

MADE IN SPAIN



MTE-THOMSON



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Function

Valves that direct the engine's liquid flow to the radiator.

Application

Used in the cooling systems (sealed or not) of engines cooled by liquid or air.

Operation Principle

The Thermostat uses a petroleum-refined thermo-expansive wax that is calibrated according to specification. With the increase of temperature, the wax expands inside the thermo-element, causing the displacement of the stainless steel pin, compressing the spring and opening the valve, which allows the passage of the liquid to the radiator. **(Fig.1)**.

Location

Generally near the engine and the upper hose that exits from the radiator.

Use

Used to:

- Allowed a fast heating of the engine. (the Thermostat remains closed while the engine is cool).
- Keep the engine operating between the designed temperature limits. (after the Thermostat opened).

Advantages:

- Reduce friction and extend the engine's life.
- Reach the maximum torque and power.
- Avoid excessive fuel consumption.
- Avoid high level of emissions.

Operating Temperature

All types of Thermostats have in its code the initial opening temperature.

Ex: 288.80. The thermostat starts to open between 78°C and 82°C and should be completely opened at 95°C, with a course of at least 8mm. **(Fig.2)**.

When it does not work:

Opened: High fuel consumption and pollutant emission, low power and torque.

Closed: Causes the engine to overheat, burning the cylinder's head gasket, warping the cylinder's head and etc.

Diagnostic

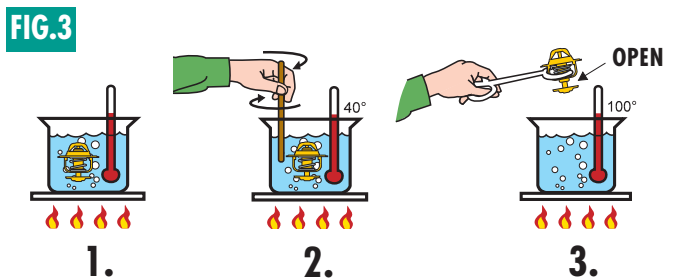
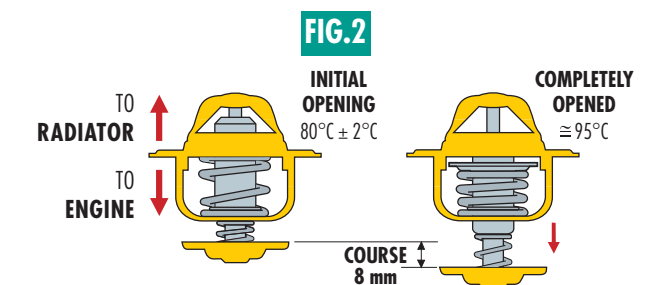
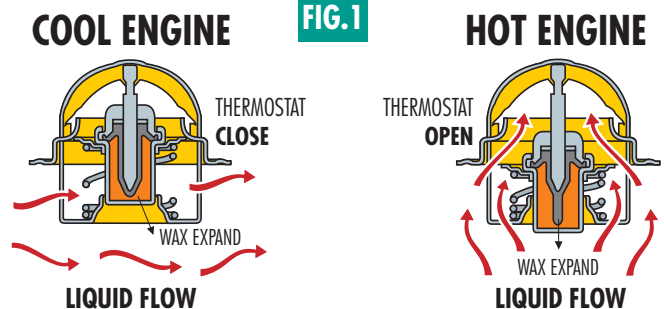
Valve's test: (Fig. 3).

1. Place the Thermostat into a container with ethylene glycol based liquid and leave in low fire. (do not allow the Thermostat to touch the bottom of the container).
2. Observe the Thermostat operation, while using a thermometer and stirring the liquid for better temperature uniformity.
3. After 15 minutes (>100°C), remove the thermostat and note if it is completely opened. **Important:** This test verifies only the valve's operation. A more detailed study, such as the assessment of the opening temperature, should be accomplished with specific equipments in the factory.

Maintenance

Important actions when changing the Thermostat:

- Always use a new gasket or seal ring.
- Bleed the air (remove air bubbles) from the cooling system.
- Check for leaking after the repair.
- Do not leave the vehicle without a thermostat, because the engine will always operate, causing failures, excessive fuel consumption and increased emissions.



Cares

- Always check the correct Thermostat for each vehicle model.
- Never perform a maintenance repair while the cooling system is hot. There is a great risk of burning traumas.
- At any symptom of excessive temperature, park the vehicle in a safe place and turn off the engine immediately.
- Check the cooling fluid level weekly, with the engine cold.
- Always use the specified cooling fluid and the correct rate.
- Do not complete the cooling system with pure water, because this will dilute the ethylene glycol concentration.
- Any reduction in the cooling fluid level indicates a leaking in the cooling system.
- Perform the preventive maintenance of the Thermostats every 30.000 Km.

Warranty

- The MTE-THOMSON products are warranted by 01 year against manufacture or material defects, starting from the purchase date, by the final user.
- The warranty is not valid for parts damaged due to installation errors, wrong application or accident.
- The replacement will occur in the purchase place, by means of the presentation of the purchase bill, according to the description on the Warranty Procedures.
- This warranty is valid only for MTE-THOMSON products.

Função

São as Válvulas que direcionam o fluxo de líquido do motor para o radiador.

Aplicação

São utilizados nos sistemas de arrefecimento (selados ou não) dos motores refrigerados a líquido ou a ar.

Princípio de Funcionamento

Os Termostatos utilizam uma cera expansiva derivada do petróleo, calibrada conforme especificação. Com o aumento de temperatura, sua expansão dentro do termo-elemento provoca o deslocamento do pino de inox, comprimindo a mola e possibilitando a abertura da Válvula e a passagem do líquido para o radiador. (Fig.1).

Localização

Geralmente próximo do motor e da mangueira superior que sai do radiador.

Utilização

Utilizado para:

- Proporciona um aquecimento rápido ao motor. (O Termostato fica fechado quando o motor está frio).
- Após a abertura do Termostato, manter o motor trabalhando dentro dos limites de temperatura a que foi projetado.

Vantagens:

- Evitar atrito e prolongar a vida útil do motor.
- Atingir o máximo de torque e potência
- Evitar excesso de consumo de combustível
- Evitar maiores índices de poluentes.

Temperatura de Trabalho

Todos os tipos de Termostatos possuem em seu código a temperatura de início de abertura.

Ex: 288.80. O termostato começa seu estágio de abertura entre 78°C e 82°C, devendo estar totalmente aberta em 95°C com curso de no mínimo 8 mm. (Fig. 2).

Quando não funciona:

- Aberta: alto consumo de combustível e emissão de poluentes, baixa potência e torque.
- Fechada: Provoca um superaquecimento no motor, queima de junta de cabeçote, empenamento do cabeçote do motor, etc.

Diagnóstico

Teste da Válvula: (Fig. 3).

1. Colocar o Termostato em um recipiente com líquido a base de etileno-glicol e levar ao fogo baixo (evitar que o termostato encoste no fundo).
2. Com o auxílio de um termômetro e agitando o líquido para uma melhor uniformidade da temperatura, observe o funcionamento do termostato.
3. Após 15 minutos (>100°C), retire-o e observe que deve estar totalmente aberto.

Importante: Este teste checka somente se a Válvula está em funcionamento, um estudo mais detalhado, como a temperatura de abertura, deverá ser realizado em equipamentos específicos na fábrica.

Manutenção

Cuidados quando trocar o Termostato:

- Utilizar sempre uma nova junta ou anel de vedação.
- Fazer a sangria (retirada do ar) do sistema de arrefecimento.
- Após reparo verificar se não existe vazamentos.
- Não deixe o veículo sem o Termostato, o motor trabalhará sempre frio, ocasionando falhas, consumo excessivo de combustível e aumento na emissão de poluentes.

MOTOR FRIO

FIG.1

MOTOR QUENTE

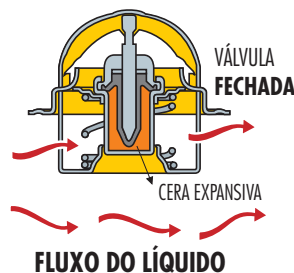


FIG.2

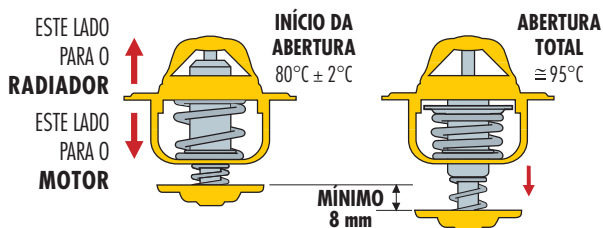
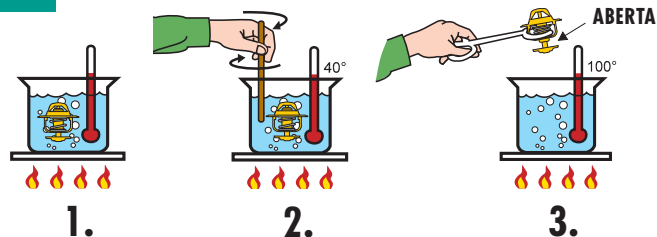


FIG.3



Cuidados

- Verifique sempre o Termostato correto para cada modelo do veículo.
- Nunca faça manutenção com o sistema de arrefecimento quente. Grande risco de queimaduras.
- Qualquer sintoma de excesso de temperatura, estacione em local seguro e desligue o motor imediatamente.
- Checar o nível do líquido semanalmente com o motor frio.
- Utilizar sempre o líquido de arrefecimento especificado e na proporção correta.
- Não completar com água pura, pois dilui a concentração do etileno-glicol.
- Diminuição do nível do líquido, deve ter algum vazamento no sistema.
- Faça sempre a manutenção preventiva dos Termostatos a cada 30.000 Km.

Garantia

- Os produtos da MTE-THOMSON possuem garantia de 01 ano contra defeitos de fabricação ou material, a partir da data da compra pelo usuário final.
- A garantia não tem validade para peças danificadas por erros de instalação, aplicação ou acidente.
- A reposição ocorrerá no local da compra mediante apresentação da nota fiscal, conforme descrito no Procedimento de Garantia.
- Esta garantia é válida apenas para os produtos da MTE-THOMSON.

MTE VT 205

90.144.834
GM



65±2°C
71±2°C
75±2°C
79±2°C
82±2°C
91±2°C

0235



D1	54	P	E	F	V
d2	30	x	x	x	x
A	28	x	x	x	x

MTE 206

1337.47
1337.49
PEUGEOT
1337.47
CITROËN



75±2°C
82±2°C

D1	57	P	E	F	V
d2	-	x	x	x	x
A	20	x	x	x	x

MTE 207

D5NU8575 A
FORD
AT22961
JOHN DEERE
21200-F3100
NISSAN
DATSUN
18003357-61
IHC
51.064.020.002
MAN



71±2°C
73±2°C
75±2°C
79±2°C
85±2°C
87±2°C
90±2°C

D1	54	P	E	F	V
d2	-	x	x	x	x
A	23	x	x	x	x

MTE VT 207

03.138.097
93.270.898
52.253.085
94.618.609
GM
1338055
OPEL
VAUXHALL



1451



D1	54	P	E	F	V
d2	-	x	x	x	x
A	23	x	x	x	x

75±2°C
85±2°C
90±2°C

MTE VT 208

4351196
7500782
7630391
FIAT



82±2°C
85±2°C
87±2°C

1453



0222



D1	56	P	E	F	V
d2	33,5	x	x	x	x
A	37,1	x	x	x	x

MTE VT 210

7649055
7527852
FIAT



82±2°C
85±2°C

1453



0222



D1	56	P	E	F	V
d2	33	x	x	x	x
A	37,2	x	x	x	x

MTE VT 211

93.206.807 - 93.277.347
90.410.665 - 93.225.280
93.258.737 - 93.206.694
09.129.908 - 90.220.435
90.232.012 - 90.352.677
90.354.822 - 93.367.725
90.412.901 - 90.443.472
90.466.412
GM
7083375
FIAT



0209



1452



D1	40,3	P	E	F	V
d2	30	x	x	x	x
A	-	x	x	x	x

71±2°C
75±2°C
79±2°C
82±2°C
87±2°C
92±2°C

MTE VT 214

7.118.200
FIAT
524942
283281
SCANIA



71±2°C
75±2°C
79±2°C
83±2°C

0238



D1	91,5	P	E	F	V
d2	55	x	x	x	x
A	42,3	x	x	x	x

MTE VT 215

525155
SCANIA



71±2°C
75±2°C
79±2°C
83±2°C

0212



D1	67	P	E	F	V
d2	43	x	x	x	x
A	25,5	x	x	x	x

MTE VT 217

052.121.113.A
AUDI
SEAT
SKODA
VW
03.038.094
GM



71±2°C
75±2°C
79±2°C
82±2°C
87±2°C
92±2°C

0224



D1	48	P	E	F	V
d2	-	x	x	x	x
A	18,5	x	x	x	x

MTE VT 218

2.485.666 - 75037
GM/MAXION
INTERNATIONAL
MASSEY/PERKINS
89BM-8575-AD
FORD
3345628
VOLVO



1455



D1	54	P	E	F	V
d2	-	x	x	x	x
A	23	x	x	x	x

75±2°C
82±2°C
88±2°C
92±2°C

MTE VT 219

7615235
FIAT



83±2°C

0226



D1	54	P	E	F	V
d2	27	x	x	x	x
A	35,7	x	x	x	x

MTE VT 220

8-94214-962-0
ISUZU
0839-15-171
MAZDA
21200-05D10
NISSAN



76±2°C
82±2°C

1638



D1	54	P	E	F	V
d2	27	x	x	x	x
A	35,7	x	x	x	x

MTE VT 221

93.206.807
90.354.822
90.220.435
90.443.472
GM



82±2°C
92±2°C

0209



D1	40,3	P	E	F	V
d2	30	x	x	x	x
A	30,3	x	x	x	x

MTE VT 223

6842409
VOLVO
7656567
FIAT



0233



D1	56	P	E	F	V
d2	35	x	x	x	x
A	35	x	x	x	x

76±2°C
82±2°C

MTE VT 224

059.121.113 A
VOLKSWAGEN



82±2°C
90±2°C

0226



D1	54	P	E	F	V
d2	35	x	x	x	x
A	31	x	x	x	x

MTE VT 225

076.121.113
VOLKSWAGEN
7700.657.955
RENAULT



80±2°C
87±2°C
92±2°C

0212



D1	67	P	E	F	V
d2	35	x	x	x	x
A	25,5	x	x	x	x

MTE VT 226

025.121.113.E
AUDI/VW
11531713040
BMW
002.203.7575
MBB
269374
SCANIA
1338466
OPEL/VAUXHALL



75±2°C
79±2°C
80±2°C
82±2°C
87±2°C
88±2°C
92±2°C

0212



D1	67	P	E	F	V
d2	35	x	x	x	x
A	25,5	x	x	x	x

MTE VT 227

96MM-8575-BD
96MM-8575-A1A
FORD
036.121.113.A
AUDI
SEAT
SKODA
VOLKSWAGEN



0245

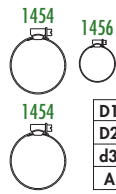


D1	48	P	E	F	V
d2	-	x	x	x	x
A	18,5	x	x	x	x

82±2°C
88±2°C
92±2°C

MTE VT 228

9.225.0.757.013.6
FORD
11130/13130
VOLKSWAGEN



D1	38
D2	38
d3	22
A	-
P	x
E	x
F	x
V	x

79° ± 2°C

MTE VT 229

069.121.113
069.121.113.A
035.121.113.B
AUDI
3273728-6
272246
2722460
VOLKSWAGEN



D1	67
d2	35
A	25,5
P	x
E	x
F	x
V	x

87° ± 2°C

MTE VT 230

93.215.642
GM



D1	40,3
d2	-
A	-
P	x
E	x
F	x
V	x

92° ± 2°C

MTE VT 231

52.268.659
GM



D1	40,3
d2	30
A	30,3
P	x
E	x
F	x
V	x

92° ± 2°C

MTE VT 232

51.064.020.042
MAN
9847517
IVECO
002.203.76.75
002.203.78.75
MERCEDES-BENZ
22037675
22037676
JAGUAR
7701.349.415
RENAULT

1337.34
PEUGEOT
3273480-4
VOLVO



D1	67
d2	43
A	25,5
P	x
E	x
F	x
V	x

60° ± 2°C
65° ± 2°C
71° ± 2°C
77° ± 2°C
79° ± 2°C
83° ± 2°C
87° ± 2°C

MTE VT 233

751734
8389512
SAAB
7540318
ALFA ROMEO
7656567
FIAT
94214962
ISUZU
21200-W 3305
NISSAN
DATSUN

8AB3-15-171
MAZDA
C28067
C37129
C87129
C33012
JAGUAR
GTS-108
ROVER GROUP
3273458
VOLVO



D1	54
d2	30
A	31
P	x
E	x
F	x
V	x

82° ± 2°C
88° ± 2°C

MTE VT 234

104159
DAF
751872
VOLVO
98420718
IVECO
002.203.8275
MERCEDES-BENZ



D1	67
d2	43
A	25,5
P	x
E	x
F	x
V	x

60° ± 2°C
65° ± 2°C
71° ± 2°C
75° ± 2°C
79° ± 2°C
92° ± 2°C

MTE 235

4703088
4750024
98463637
FIAT
60713535
ALFA ROMEO
7701.026.647
RENAULT
4684390
IVECO



D1	54
d2	27
A	24,5
P	x
E	x
F	x
V	x

75° ± 2°C
79° ± 2°C

MTE VT 236

003.203.32.75 - 003.203.78.75
004.203.43.75 - A.004.203.83.75
MERCEDES-BENZ
11531265085
BMW
255502
SCANIA
836115646
VALTRA
167354
IVECO



D1	67
d2	43
A	25,5
P	x
E	x
F	x
V	x

60° ± 2°C
65° ± 2°C
71° ± 2°C
74° ± 2°C
75° ± 2°C
79° ± 2°C
80° ± 2°C
83° ± 2°C
87° ± 2°C

MTE VT 237

4804321
IVECO
6182480
FORD
93501386
CITROËN
1337.68
PEUGEOT
7701.697.175
RENAULT

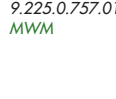
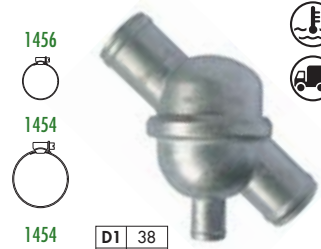


D1	67
d2	30
A	25,5
P	x
E	x
F	x
V	x

81° ± 2°C
88° ± 2°C
89° ± 2°C

MTE VT 238

002.203.54.76
344.203.70.75
MERCEDES-BENZ
2730284-M1
MAXION
INTERNATIONAL
MASSEY
PERKINS
9.225.0.757.015.6
MWM



D1	38
D2	38
d3	22
A	-
P	x
E	x
F	x
V	x

71° ± 2°C
79° ± 2°C

MTE VT 239

928M-8575-AE
948M-8575-AA
928M-8575-AD
FORD



D1	52
d2	35
A	32,7
P	x
E	x
F	x
V	x

88° ± 2°C
92° ± 2°C

MTE VT 240

93.215.642
GM



D1	40,3
d2	-
A	-
P	x
E	x
F	x
V	x

92° ± 2°C

MTE VT 241

52.268.659
GM

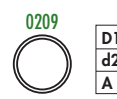


D1	40,3
d2	30
A	29
P	x
E	x
F	x
V	x

92° ± 2°C

MTE VT 242

93.232.441
GM

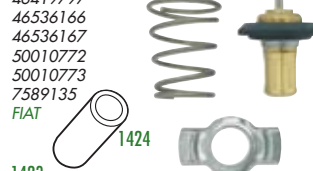


D1	28,5
d2	30
A	29
P	x
E	x
F	x
V	x

80° ± 2°C

MTE VT 244

419797 - 46434723
46419797
46536166
46536167
50010772
50010773
7589135
FIAT



D1	29,5
d2	-
A	-
P	x
E	x
F	x
V	x

87° ± 2°C

MTE VT 245

030.121.111 ST
032.121.110.C
032.121.110.B
VOLKSWAGEN



D1	26,1
d2	-
A	53,8
P	x
E	x
F	x
V	x

80° ± 2°C
87° ± 2°C

MTE VT 245 CT

030.121.111 ST
032.121.110.C
032.121.110.B
VOLKSWAGEN



With Tamp



D1	26,1
d2	-
A	53,8

P	E	F	V
x	x	x	x

80±2°C
87±2°C



MTE 246

E6T2-8575-A
F2T2-8575-A
FORD
16340-470010
TOYOTA



D1	52
d2	-
A	23

P	E	F	V
x	x	x	x

77±2°C
82±2°C
88±2°C



MTE VT 247

72MU-8575-A
79NU-8575-B
84NU-8575-D
FORD
225070
DAF
7701.348.376
RENAULT



D1	40
d2	-
A	18,5

P	E	F	V
x	x	x	x

75±2°C
77±2°C
82±2°C
83±2°C
87±2°C
89±2°C



MTE VT 248

188586
CUMMINS
9605713680
1337.27
1338.11
CITROËN
PEUGEOT
86AU-8575-A1A
86AU-8575-B1A
FORD

7701.348.372
7700.872.314
7700.723.945
RENAULT
029.121.113.1
029.121.113.2
VOLKSWAGEN
343567
VOLVO



D1	54
d2	-
A	23

P	E	F	V
x	x	x	x

77±2°C
82±2°C
87±2°C



MTE VT 249

95492897
95492929
CITROËN
1337.65
PEUGEOT
29L-12411-00
YAMAHA



D1	44
d2	-
A	18,5

P	E	F	V
x	x	x	x

78±2°C
84±2°C



MTE VT 250

46434723
FIAT



D1	35
d2	16
A	-

P	E	F	V
x	x	x	x

87±2°C



MTE VT 251

46419797
FIAT



D1	35
d2	16
A	-

P	E	F	V
x	x	x	x

87±2°C



MTE VT 252

7910016560
7910011101
9617178080
CITROËN
1337.30
PEUGEOT
7701.348.372
RENAULT



D1	53,5
d2	-
A	23

P	E	F	V
x	x	x	x

82±2°C
88±2°C



MTE VT 254

2550011200
HYUNDAI
6554010606
INNOCENTI
19300-PAO-003
19300-PB2-004
HONDA
90048-33001
90048-33029
90916-03040
90916-03055
DAIHATSU

90916-03062
TOYOTA
LEXUS
HE-41-99-152
MAZDA
MD005317
MITSUBISHI



D1	52
d2	-
A	23

P	E	F	V
x	x	x	x

71±2°C
75±2°C
82±2°C
88±2°C



MTE VT 253

19300-PEO-013
19300-PEO-024
19300-PLZ-004
19301-PO8-316
HONDA
J9091603099
VW



D1	52
d2	27
A	34,5

P	E	F	V
x	x	x	x

71±2°C
75±2°C
77±2°C
82±2°C
88±2°C



MTE VT 255

238156
SCANIA



D1	65
d2	-
A	41

P	E	F	V
x	x	x	x

79±2°C
83±2°C



MTE VT 256

21200-77A00
21200-77A65
NISSAN
DATSUN
90916.03046
90916.03115
TOYOTA
LEXUS
J9091603046
VOLKSWAGEN



D1	48
d2	30
A	34

P	E	F	V
x	x	x	x

71±2°C
75±2°C
82±2°C



MTE VT 258

273952
VOLVO
MD997461
MD015299
MITSUBISHI



D1	54
d2	30
A	31

P	E	F	V
x	x	x	x

76±2°C
81±2°C
82±2°C



MTE VT 259

21200-P7901
21200-V0200
NISSAN
DATSUN
RF01-99-152
MAZDA
4304369
OPEL
VAUXHALL



D1	54
d2	-
A	23

P	E	F	V
x	x	x	x

82±2°C
88±2°C



MTE VT 260

13770051
ISUZU
21200-99B03
21200-P7901
21200-V0200
NISSAN
DATSUN



D1	54
d2	-
A	23

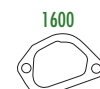
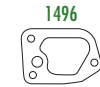
P	E	F	V
x	x	x	x

71±2°C
75±2°C
82±2°C



MTE VT 262

7664775
7688351
FIAT



D1	29,5
d2	-
A	-

P	E	F	V
x	x	x	x

82±2°C
87±2°C



MTE VT 261

111.203.08.75
111.203.09.15
MERCEDES-BENZ



65 \pm 2 $^{\circ}$ C
71 \pm 2 $^{\circ}$ C
79 \pm 2 $^{\circ}$ C
80 \pm 2 $^{\circ}$ C
85 \pm 2 $^{\circ}$ C
87 \pm 2 $^{\circ}$ C

0209
D1 40,2
d2 43
A 34
P E F V
x x x x

MTE 263

1030950
11409509
SKODA



D1 60
d2 -
A 23
P E F V
x x x x

74 \pm 2 $^{\circ}$ C
80 \pm 2 $^{\circ}$ C
88 \pm 2 $^{\circ}$ C

MTE VT 264

1200-05800
NISSAN
16341-87780
DAIHATSU
0187-15-171
MAZDA
21200-KA010
SUBARU
17600-60811
SUZUKI



0241
D1 44
d2 -
A 18,5
P E F V
x x x x

82 \pm 2 $^{\circ}$ C
88 \pm 2 $^{\circ}$ C

MTE VT 265

03.138.097
93.270.898
52.253.085
94.618.609
GM
1338055
OPEL
VAUXHALL



0221
D1 54
d2 34,9
A 40,5
P E F V
x x x x

82 \pm 2 $^{\circ}$ C

MTE 267

75041
MAXION
INTERNATIONAL



D1 69,8
d2 -
A 14
P E F V
x x x x

77 \pm 2 $^{\circ}$ C

MTE 268

1485678
CHRYSLER
66255
CUMMINS
1081102R91
IHC
75040
MAXION
INTERNATIONAL



D1 63,2
d2 -
A 31
P E F V
x x x x

80 \pm 2 $^{\circ}$ C
82 \pm 2 $^{\circ}$ C
87 \pm 2 $^{\circ}$ C

MTE VT 269

50010772
FIAT



1423
D1 35
d2 16
A -
P E F V
x x x x

87 \pm 2 $^{\circ}$ C

MTE VT 270

50010773
FIAT



1423
D1 35
d2 16
A -
P E F V
x x x x

87 \pm 2 $^{\circ}$ C

MTE VT 271

9630067480
CITROËN
7700.872.554
RENAULT



0224
D1 50
d2 -
A 23
P E F V
x x x x

89 \pm 2 $^{\circ}$ C

MTE VT 272

F57Z-8575-A
FORD



0212
D1 38,6
d2 -
A -
P E F V
x x x x

82 \pm 2 $^{\circ}$ C

MTE VT 273

167513
DAF
61316592
IVECO
5000816924
RENAULT



0226
D1 54
d2 27
A 24,5
P E F V
x x x x

75 \pm 2 $^{\circ}$ C
79 \pm 2 $^{\circ}$ C
82 \pm 2 $^{\circ}$ C

MTE VT 278

2485687
INTERNATIONAL
MAXION
MASSEY
PERKINS
75038
MAXION
INTERNATIONAL



0228
D1 54
d2 -
A 23
P E F V
x x x x

82 \pm 2 $^{\circ}$ C

MTE VT 279

A116.200.0315
004.203.3375
MERCEDES-BENZ



0212
D1 67
d2 30
A 44
P E F V
x x x x

80 \pm 2 $^{\circ}$ C

MTE VT 280

037.121.113
068.121.113.H
VOLKSWAGEN
044.121.113
068.121.113.H
068.121.113
AUDI
6124378
6100372
FORD



0228
D1 54
d2 35
A 31
P E F V
x x x x

78 \pm 2 $^{\circ}$ C
82 \pm 2 $^{\circ}$ C
87 \pm 2 $^{\circ}$ C

MTE VT 281

601.200.01.15
602.200.00.15
601.200.00.15
606.203.01.75
606.203.02.75
MBB



0229
D1 67
d2 41,7
A 30,5
P E F V
x x x x

60 \pm 2 $^{\circ}$ C
65 \pm 2 $^{\circ}$ C
71 \pm 2 $^{\circ}$ C
75 \pm 2 $^{\circ}$ C
80 \pm 2 $^{\circ}$ C
85 \pm 2 $^{\circ}$ C

MTE VT 282

XS6E-8575-A2D
FORD



0221
D1 54
d2 35
A 40,5
P E F V
x x x x

82 \pm 2 $^{\circ}$ C

MTE VT 283

119.200.00.15
MERCEDES-BENZ



0209
D1 40,1
d2 30
A -
P E F V
x x x x

80 \pm 2 $^{\circ}$ C

MTE VT 284

E3HN-8575-AA
FORD
2.485.613 - 75039
70.998.113
GM
70998114 - 75039
MAXION
INTERNATIONAL
MASSEY FERGUSSON
PERKINS



1609
D1 54
d2 30
A 33,5
P E F V
x x x x

72 \pm 2 $^{\circ}$ C
82 \pm 2 $^{\circ}$ C

MTE VT 286

TAE.121.113
FORD
9.052.5.010.003.8
MWM
2TJ.121.113
TAE.121.113
9.052.501.0.003.8
VOLKSWAGEN



0244
D1 54
d2 30
A 33
P E F V
x x x x

80 \pm 2 $^{\circ}$ C

MTE VT 289

4674169
4655782
4703624
4703625
4823226
FIAT



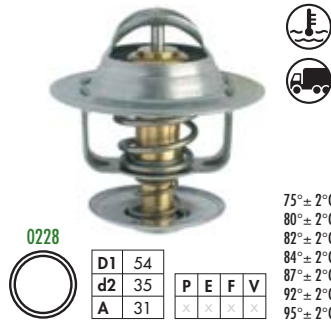
D1 54
d2 25
A 26
P E F V
x x x x

82 \pm 2 $^{\circ}$ C

MTE VT 288

030.121.113
AUDI
056.121.113.D
FORD
90.412.604
GM
4N6959
CATERPILLAR
1338.23
PEUGEOT
4220309
INNOCENTI

1338024
1338033
1338038
OPEL
VAUXHALL
056.121.113.A
056.121.113.D
ZBA.121.113
030.121.113
030.121.113.A
VOLKSWAGEN



MTE VT 291

111.203.03.75
111.200.03.15
MERCEDES-BENZ



MTE VT 292

111.200.09.15
MERCEDES-BENZ



MTE VT 293

F87Z-8575-BA
F8CZ-8575-AA
FORD



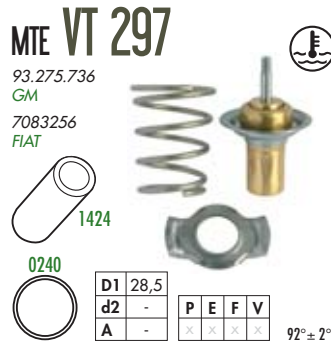
MTE VT 294

050.121.113 C
AUDI
VOLKSWAGEN



MTE VT 297

93.275.736
GM
7083256
FIAT



MTE VT 298

BTD33T49800
LEON HEIMER



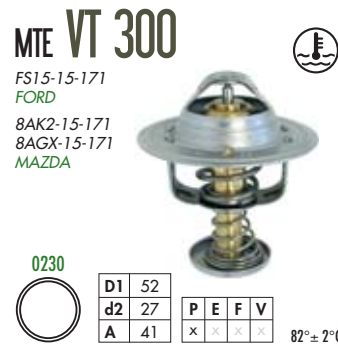
MTE VT 299

08.966.854
94.621.060
GM



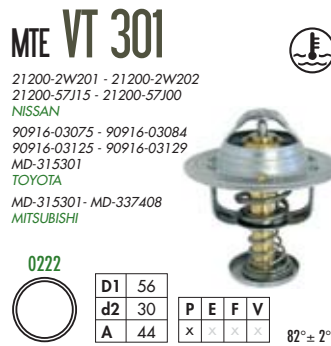
MTE VT 300

FS15-15-171
FORD
8AK2-15-171
8AGX-15-171
MAZDA



MTE VT 301

21200-2W201 - 21200-2W202
21200-57115 - 21200-57100
NISSAN
90916-03075 - 90916-03084
90916-03125 - 90916-03129
MD-315301
TOYOTA
MD-315301 - MD-337408
MITSUBISHI



MTE VT 302

BF9X-8575-AA
FORD
3907242
3928639
CUMMINS
TE3.121.113
2RK.121.113
3907242
VOLKSWAGEN



MTE 304

96MM-8575-CA
FORD



MTE VT 305

75151/ERR 3291 A
MAXION
INTERNATIONAL
MASSEY FERGUSSON
PERKINS
00.075.151
GM
ERR-3291-A
FORD



MTE VT 308

21200AA072
SUBARU



MTE VT 309

12563335
12557859
GM



MTE VT 310

1.E07.15.171
MAZDA
89FF-8575-AB
FORD



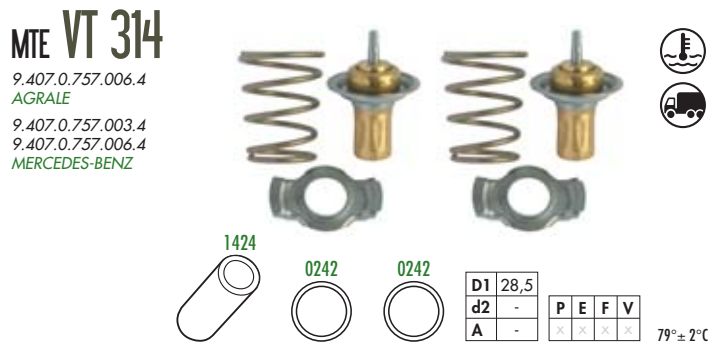
MTE VT 313

93275736
GM
7083256
FIAT



MTE VT 314

9.407.0.757.006.4
AGRALE
9.407.0.757.003.4
9.407.0.757.006.4
MERCEDES-BENZ



MTE VT 315

16340-54010
TOYOTA



0226

D1	52	P	E	F	V
d2	30	x	x	x	x
A	33,5				

88°± 2°C

MTE VT 316

9.052.5.010.003.9
MWM
2TA.121.113
2TA.121.113.A
9.052.501.0.003.9
VOLKSWAGEN



0228

D1	54	P	E	F	V
d2	30	x	x	x	x
A	33				

80°± 2°C

MTE VT 317

21230-6N20A
NISSAN
77.01.065.358
RENAULT



0230

D1	52	P	E	F	V
d2	-	x	x	x	x
A	23				

95°± 2°C

MTE VT 318

059.121.113.A
059.121.113.B
VOLKSWAGEN



0228

D1	54	P	E	F	V
d2	35	x	x	x	x
A	33				

83°± 2°C

MTE VT 319

1358995
SCANIA



0246

D1	67	P	E	F	V
d2	43	x	x	x	x
A	25,5				

83°± 2°C

MTE VT 320

9.052.5.010.004.2
MWM.052501
GM



0243

D1	46	P	E	F	V
d2	-	x	x	x	x
A	18,5				

79°± 2°C

MTE VT 321

46523733
46776216
46464992
FIAT



0209

D1	35	P	E	F	V
d2	35	x	x	x	x
A	-				

88°± 2°C

MTE VT 322

60653946
FIAT



D1	-	P	E	F	V
d2	-	x	x	x	x
A	-				

88°± 2°C

MTE VT 323

46520785
7794218
FIAT



D1	-	P	E	F	V
d2	-	x	x	x	x
A	-				

88°± 2°C

MTE VT 324

7723325
FIAT



1600

D1	28,5	P	E	F	V
d2	-	x	x	x	x
A	-				

87°± 2°C

MTE VT 325

7581635
7581200
7581501
FIAT



1600

D1	28,5	P	E	F	V
d2	-	x	x	x	x
A	-				

82°± 2°C
87°± 2°C

MTE VT 326

7773790
FIAT



D1	-	P	E	F	V
d2	-	x	x	x	x
A	-				

75°± 2°C
82°± 2°C
88°± 2°C
92°± 2°C

MTE VT 327

90.410.665
GM



0209

D1	40,3	P	E	F	V
d2	30	x	x	x	x
A	30,5				

82°± 2°C

MTE VT 328

90.232.012
93.206.694
GM
1338043
1338049
OPEL
VAUXHALL



0209

D1	40,3	P	E	F	V
d2	30	x	x	x	x
A	30,5				

87°± 2°C
92°± 2°C

MTE VT 329

90.352.677
GM



0209

D1	40,3	P	E	F	V
d2	30	x	x	x	x
A	30,5				

92°± 2°C

MTE VT 330

1338.39
CITROËN



0209

D1	55	P	E	F	V
d2	-	x	x	x	x
A	23				

83°± 2°C

MTE VT 331

7700.868.980
RENAULT



0286

D1	10,0	P	E	F	V
d2	32	x	x	x	x
A	25,7				

89°± 2°C

MTE VT 332

9N2894
9N3017
1W5253
5N6242
CATERPILLAR
3002742
017360
169268
301737
CUMMINS
1544683-4
8149182
VOLKSWAGEN
1544683-4
VOLVO



D1	57,8	P	E	F	V
d2	72,3	x	x	x	x
A	-				

71°± 2°C
77°± 2°C
82°± 2°C
88°± 2°C

MTE VT 334

6L6108
CATERPILLAR
3013460
3802968
39177624
CUMMINS



D1	41	P	E	F	V
d2	62,5	x	x	x	x
A	-				

82°± 2°C

MTE VT 335

657GC39P70
314P70
39P55
MACK TRUCKS



D1	57	P	E	F	V
d2	73	x	x	x	x
A	-				

82° ± 2°C

MTE VT 337

657GC13580
MACK TRUCKS



D1	41	P	E	F	V
d2	62,5	x	x	x	x
A	-				

82° ± 2°C

MTE VT 339

310727R91
148769R91
NAVISTAR



D1	54	P	E	F	V
d2	65	x	x	x	x
A	-				

82° ± 2°C

MTE VT 340

446436C1
NAVISTAR



D1	54	P	E	F	V
d2	24	x	x	x	x
A	-				

82° ± 2°C

MTE VT 341

7N0208
CATERPILLAR



D1	81	P	E	F	V
d2	49	x	x	x	x
A	-				

80° ± 2°C

MTE VT 342

BF6T-8575-AA
TRA.121.113
BG2X-8575-AA
BF8T-8575-A
CUMMINS
BF6T-8575-AA
TRA.121.113
BG2X-8575-AA
BF8T-8575-A
FORD
250.121.113.A
2VG.121.113
VOLKSWAGEN



D1	54	P	E	F	V
d2	18,3	x	x	x	x
A	28,8				

82° ± 2°C

MTE VT 344

96160901
CITROËN
1338.23
PEUGEOT



D1	55	P	E	F	V
d2	30	x	x	x	x
A	35,5				

83° ± 2°C
87° ± 2°C

MTE VT 345

7688351
FIAT



D1	29,5	P	E	F	V
d2	-	x	x	x	x
A	-				

87° ± 2°C

MTE VT 347

7664775
FIAT



D1	29,5	P	E	F	V
d2	-	x	x	x	x
A	-				

87° ± 2°C

MTE VT 349

46737644
FIAT

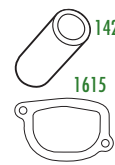


D1	29,5	P	E	F	V
d2	-	x	x	x	x
A	-				

87° ± 2°C

MTE VT 350

46737644
FIAT



D1	29,5	P	E	F	V
d2	-	x	x	x	x
A	-				

87° ± 2°C

MTE VT 351

7628527
5942240
46419797
FIAT



D1	-	P	E	F	V
d2	-	x	x	x	x
A	-				

80° ± 2°C
87° ± 2°C

MTE VT 353

5999818
7589824
7625346
7625347
FIAT



D1	-	P	E	F	V
d2	-	x	x	x	x
A	-				

80° ± 2°C

MTE VT 355

90916-03077
90916-03102
TOYOTA



D1	73	P	E	F	V
d2	31	x	x	x	x
A	38				

82° ± 2°C

MTE VT 359

A.936.200.02.15
MERCEDES-BENZ
1404924
SCANIA



D1	67	P	E	F	V
d2	43	x	x	x	x
A	25,5				

83° ± 2°C

MTE VT 360

7778655
FIAT



D1	35,0	P	E	F	V
d2	-	x	x	x	x
A	-				

87° ± 2°C

MTE VT 361

93.277.347
93.225.280
93.258.737
94.731.438
GM



D1	40,3	P	E	F	V
d2	30	x	x	x	x
A	30,5				

82° ± 2°C
87° ± 2°C

MTE VT 362

98463637
IVECO
500329622
FIAT



D1	54	P	E	F	V
d2	25	x	x	x	x
A	31				

71° ± 2°C
82° ± 2°C

MTE VT 363

7142716
IVECO



D1	67	P	E	F	V
d2	30	x	x	x	x
A	25,5				

71° ± 2°C

MTE VT 364

97.087.130
GM
1338075
4301365
OPEL



0228



D1	54
d2	25
A	33

P	E	F	V
x	x	x	x

85±2°C

MTE VT 365

1338.44
PEUGEOT



0235



D1	54
d2	-
A	23

P	E	F	V
x	x	x	x

83±2°C
89±2°C

MTE VT 366

4138769
CHRYSLER



1483



D1	54
d2	-
A	23

P	E	F	V
x	x	x	x

90±2°C

MTE VT 367

46776217
FIAT



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

88±2°C

MTE VT 368

46432157
FIAT



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

88±2°C

MTE VT 369

7649055
7527852
FIAT



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

87±2°C

MTE VT 370

1336.Q1
PEUGEOT



D1	56,8
d2	34
A	19,0

P	E	F	V
x	x	x	x

89±2°C

MTE VT 371

1336.T9
PEUGEOT
7700.110.716
RENAULT



D1	28,5
d2	-
A	-

P	E	F	V
x	x	x	x

89±2°C

MTE VT 372

90.412.901
93.333.936
93.367.725
GM



0260



D1	40,3
d2	30
A	30,0

P	E	F	V
x	x	x	x

92±2°C

MTE VT 373

90.501.699
90.501.081
GM
1338080
OPEL
VAUXHALL



D1	34
d2	30
A	-

P	E	F	V
x	x	x	x

82±2°C
87±2°C
92±2°C

MTE VT 375

OK01C-15-17Y
KIA



D1	52
d2	-
A	-

P	E	F	V
x	x	x	x

88/85±2°C

MTE VT 376

46523735
46467873
FIAT



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

88±2°C

MTE VT 377

46776218
FIAT



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

88±2°C

MTE VT 378

OK054-15-171
5E01-15-171
8AZ1-15-171
8AG2-15-171-A
KIA



D1	54
d2	-
A	-

P	E	F	V
x	x	x	x

88/85±2°C

MTE VT 379

0212



D1	67
d2	35
A	35

P	E	F	V
x	x	x	x

80±2°C

MTE VT 381

90916-03097
90916-03118
TOYOTA



D1	60
d2	30
A	40

P	E	F	V
x	x	x	x

82±2°C

MTE VT 382

7700.112.491
7701.474.249
RENAULT



D1	31,8
d2	20,1
A	-

P	E	F	V
x	x	x	x

89±2°C

MTE VT 384



D1	46
d2	30
A	22,3

P	E	F	V
x	x	x	x

80±2°C

MTE VT 387

MD 315301
MD 158570
MD 175746
MD 315301
MD 337408
MITSUBISHI



D1	56
d2	30
A	44

P	E	F	V
x	x	x	x

82±2°C

MTE VT 390

7589135
FIAT



D1	28
d2	-
A	13,1

P	E	F	V
x	x	x	x

87±2°C

MTE VT 391

09.129.908
09.129.902
GM
7083375
FIAT
1338003
OPEL



0209



D1	7,6	P	E	F	V
d2	30	x	x	x	x
A	30	x	x	x	x

92°±2°C

MTE VT 395

633165
DAF



D1	54	P	E	F	V
d2	30	x	x	x	x
A	26	x	x	x	x

79°±2°C

MTE VT 397

269374
276012
SCANIA



D1	92	P	E	F	V
d2	55	x	x	x	x
A	42,3	x	x	x	x

80°±2°C

MTE VT 398

4804321
98432310
98467516
IVECO



D1	67	P	E	F	V
d2	27	x	x	x	x
A	25,5	x	x	x	x

79°±2°C

MTE VT 399

90573326
GM
1338331
OPEL



0260



D1	36,5	P	E	F	V
d2	30	x	x	x	x
A	30	x	x	x	x

92°±2°C

MTE VT 401

XS6E-8A586-AL
XS6E-8A586-AG
XS6E-8A586-AH
FORD



D1	-	P	E	F	V
d2	-	x	x	x	x
A	-	x	x	x	x

82°±2°C

MTE VT 402

2S6G-8A586-D1C
2S6G-8A586-D1B
2S6G-8A586-B1A
FORD



D1	-	P	E	F	V
d2	-	x	x	x	x
A	-	x	x	x	x

82°±2°C

MTE VT 404

928M-9K478-AG
FORD



D1	-	P	E	F	V
d2	-	x	x	x	x
A	-	x	x	x	x

88°±2°C

MTE VT 405

928M-9K478-AE/AF
FORD



D1	-	P	E	F	V
d2	-	x	x	x	x
A	-	x	x	x	x

88°±2°C

MTE VT 406

1330.21
1338.C8
CITROËN
1338.21
PEUGEOT



0243



D1	46	P	E	F	V
d2	30	x	x	x	x
A	35	x	x	x	x

89°±2°C

MTE VT 407

90411948
GM
1338068
OPEL



1680

D1	-	P	E	F	V
d2	30	x	x	x	x
A	-	x	x	x	x

82°±2°C
92°±2°C

MTE VT 408

9.610.8.757.014.4
9.610.0.757.009.6
9.412.0.757.002.6
MWM



D1	50	P	E	F	V
d2	30	x	x	x	x
A	33,2	x	x	x	x

80°±2°C

MTE VT 410

9.610.0.757.008.6
9.225.8.757.013.6
9.610.0.942.015.6
MWM VT410.75
9.412.0.757.004.6
9.610.0.757.004.6
9.610.0.757.006.6
9.412.0.757.010.6
MWM VT410.80



D1	50	P	E	F	V
d2	30	x	x	x	x
A	43,2	x	x	x	x

75°±2°C
80°±2°C

MTE VT 421

5S6G.8A586.AB
FORD



D1	-	P	E	F	V
d2	-	x	x	x	x
A	-	x	x	x	x

100°±2°C

MTE VT 422

55202176
55194029
FIAT



D1	31,7	P	E	F	V
d2	17,7	x	x	x	x
A	-	x	x	x	x

88°±2°C

MTE VT 423

SCANIA



D1	67	P	E	F	V
d2	43	x	x	x	x
A	25,5	x	x	x	x

80°±2°C
87°±2°C

MTE VT 424

90916-03093
90916-03123
90916-03143
TOYOTA



0222



D1	56	P	E	F	V
d2	30	x	x	x	x
A	35	x	x	x	x

82°±2°C

MTE VT 426

25510-42100
HYUNDAI
KIA



0222

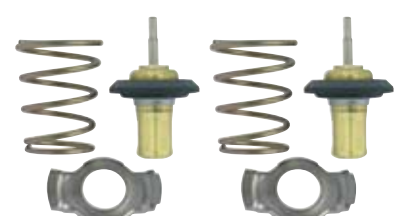


D1	56	P	E	F	V
d2	30	x	x	x	x
A	44	x	x	x	x

82°±2°C

MTE VT 425

9.407.0.757.004.4
MWM



1424

0242

0242

D1	29,5	P	E	F	V
d2	-	x	x	x	x
A	-	x	x	x	x

79°±2°C

MTE VT 427

1745449
SCANIA

1655



D1	92
d2	55
A	42,3
	P E F V
	x x x x

75/80±2°C

MTE VT 429

21006675
TRIUMPH



D1	52
d2	-
A	23
	P E F V
	x x x x

88±2°C

MTE VT 431

3M4Z-8575-B
RENAULT



D1	-
d2	-
A	-
	P E F V
	x x x x

82±2°C

MTE VT 432

82.00.709.142
RENAULT



D1	-
d2	-
A	-
	P E F V
	x x x x

83±2°C

MTE VT 433

25500-23010
HYUNDAI
KIA



1455

D1	54
d2	27
A	37
	P E F V
	x x x x

82±2°C

MTE VT 434

21200-VJ200
NISSAN



0212

D1	54
d2	27
A	33
	P E F V
	x x x x

76,5±2°C

MTE VT 435

21200-6N210
NISSAN



D1	54
d2	27
A	33
	P E F V
	x x x x

82±2°C

MTE VT 436

004.203.83.75
MERCEDES-BENZ



0212

D1	67
d2	43
A	25,5
	P E F V
	x x x x

83±2°C

MTE VT 437

504380075
504031212
504014236
504258346
IVECO



0226

D1	58
d2	18,8
A	30
	P E F V
	x x x x

81±2°C

MTE VT 438

21200-0090B
NISSAN
7700.872.554
8200.479.402
8200.772.985
RENAULT



D1	50
d2	-
A	23
	P E F V
	x x x x

89±2°C

MTE VT 439

5VK1241-00000
YAMAHA



D1	43,8
d2	-
A	18,5
	P E F V
	x x x x

71±2°C

MTE VT 440

25500-02500
KIA
21200-4M500
NISSAN



D1	48
d2	30
A	34
	P E F V
	x x x x

82±2°C

MTE VT 441

21200-ET01A
21200-ED00A
21200-ED000
NISSAN
25500-2B400
25500-2B000
HYUNDAI



D1	54
d2	-
A	23
	P E F V
	x x x x

82±2°C
88±2°C

MTE VT 442

119.200.00.15
MERCEDES-BENZ



D1	43,2
d2	30
A	51,5
	P E F V
	x x x x

80±2°C

MTE VT 444

612.200.00.15
612.203.02.75
M&B



D1	-
d2	34,9
A	-
	P E F V
	x x x x

87±2°C

MTE VT 443

MD-194988
CHRYSLER
25500-35530
25500-35531
HYUNDAI
25500-35540
25500-37200
KIA
MD174233
1305A191
1305A192
MITSUBISHI
21200-MA70A
21200-BN300
21200-BN301
NISSAN
97361771
6338014
6338029
OPEL
90916-03138
TOYOTA



D1	64
d2	30
A	43
	P E F V
	x x x x

82±2°C

MTE VT 445

032.121.110.K
VOLKSWAGEN



D1	26,1
d2	-
A	52,5
	P E F V
	x x x x

80±2°C
87±2°C

MTE VT 446

646.203.00.75
MERCEDES-BENZ



D1	-
d2	34,9
A	-
	P E F V
	x x x x

92±2°C

MTE VT 447

611.200.06.15
MERCEDES-BENZ



D1	-
d2	34,9
A	-

P	E	F	V
x	x	x	x

92°±2°C

MTE VT 449

5080146AA
CHRYSLER



D1	-
d2	34,9
A	-

P	E	F	V
x	x	x	x

87°±2°C

MTE VT 451

21200-T9002
21200-Z5514
NISSAN



D1	82
d2	51
A	45

P	E	F	V
x	x	x	x

71°±2°C
76°±2°C

MTE VT 452

1338034
OPEL
12615097
GM



D1	54
d2	-
A	23,3

P	E	F	V
x	x	x	x

82°±2°C

MTE VT 453

032121110C
032121113C
VOLKSWAGEN



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

80°±2°C

MTE VT 454

070.121.114
VOLKSWAGEN



D1	-
d2	34,3
A	30

P	E	F	V
x	x	x	x

87°±2°C

MTE VT 455

1338001
OPEL



D1	-
d2	30
A	-

P	E	F	V
x	x	x	x

92°±2°C

MTE VT 456

5098918AA
CHRYSLER
112.200.00.15
MBB



D1	-
d2	43
A	35,3

P	E	F	V
x	x	x	x

87°±2°C

MTE VT 457

611.200.03.15
MERCEDES-BENZ



D1	-
d2	34,9
A	-

P	E	F	V
x	x	x	x

87°±2°C

MTE VT 458

1338096
OPEL



D1	-
d2	23
A	25,5

P	E	F	V
x	x	x	x

92°±2°C

MTE VT 459

5292742
3967195
CUMMINS



D1	58
d2	19,6
A	30,9

P	E	F	V
x	x	x	x

82°±2°C

MTE VT 460

55224855
FIAT



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

90°±2°C

MTE VT 461

1338098
OPEL



D1	-
d2	30
A	-

P	E	F	V
x	x	x	x

92°±2°C

MTE VT 462

1336Y8
CITROËN
PEUGEOT



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

89°±2°C

MTE VT 463

4M5G-8575-ZA
FORD



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

82°±2°C

MTE VT 466

90916-03150
DAIHATSU
90048-33088
SUBARU
90048-33088
90916-03122
90916-03134
TOYOTA



D1	52
d2	33
A	48

P	E	F	V
x	x	x	x

80°±2°C

MTE VT 467

CM5G-61J20-AA
FORD



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

92°±2°C

MTE VT 470

07K.121.113B
VOLKSWAGEN



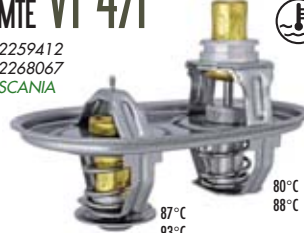
D1	67
d2	8
A	26,5

P	E	F	V
x	x	x	x

80°±2°C

MTE VT 471

2259412
2268067
SCANIA



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

80°C
87°C
88°C
93°C
80/87°±2°C
88/93°±2°C

MTE VT 472

SZ91046024
SZ910460245
HINO



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

82°±2°C

MTE VT 474

06H.121.113.B
AUDI
SEAT
SKODA
VOLKSWAGEN



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

95°± 2°C

MTE VT 475

04E.121.113.F
VOLKSWAGEN



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

95°± 2°C

MTE VT 476

04C.121.113.B
VOLKSWAGEN



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

80°± 2°C

MTE VT 477

03C.121.111.AE
03C.121.111.P
AUDI
SEAT
SKODA
VW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

87°± 2°C
95°± 2°C

MTE VT 478

03C.121.111E/K/H
03C.121.111.G
AUDI
SEAT
SKODA
VW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

87°± 2°C
105°± 2°C

MTE VT 479

504017209
FIAT



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

82°± 2°C

MTE VT 480

2T2.121.113.A
2T2.121.113.C
VOLKSWAGEN



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

78°± 2°C

MTE VT 481

03C.121.111.B 03C.121.111.G
03C.121.111E/K/H
AUDI
SEAT
SKODA
VW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

87°± 2°C

MTE VT 482

03C.121.111.P
03C.121.111.AE
AUDI
SEAT
SKODA
VW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

80°± 2°C
83°± 2°C

MTE VT 483

20463750
20560249
21237213
21412639
VOLVO
7420560249
7421237213
7421412639
RENAULT



D1	107
d2	-
A	49

P	E	F	V
x	x	x	x

82°± 2°C

MTE VT 484

271.200.00.15
271.203.03.75
271.203.05.75
MERCEDES-BENZ



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

90°± 2°C

MTE VT 485

96407677
96282726
1580783
GM
PONTIAC



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

87°± 2°C

MTE VT 486

1336.Q2
CITROËN



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

89°± 2°C

MTE VT 487

1336.Z0
CITROËN
PEUGEOT



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

91°± 2°C

MTE VT 492

60602148
ALFA ROMEO



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

83°± 2°C

MTE VT 491

004.203.16.75
MBB



D1	67
d2	-
A	17

P	E	F	V
x	x	x	x

83°± 2°C

MTE VT 493

06B.121.111.F
AUDI



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

105°± 2°C

MTE VT 495

11.51.7.500.597
BMW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

105°± 2°C

MTE VT 497

11.53.0.139.877
BMW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

97°± 2°C

MTE VT 498

11.53.1.247.125
BMW



D1	-
d2	39
A	34

P	E	F	V
x	x	x	x

95°± 2°C

MTE VT 499

11.53.1.432.884
BMW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

95°±2°C

MTE VT 500

11.53.1.436.042
BMW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

97°±2°C

MTE VT 501

11.53.1.436.386
BMW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

105°±2°C

MTE VT 502

11.53.1.437.526
BMW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

105°±2°C

MTE VT 504

1338.A0
CITROËN



D1	-
d2	25
A	43

P	E	F	V
x	x	x	x

89°±2°C

MTE VT 506

46536166
FIAT



D1	35
d2	16
A	-

P	E	F	V
x	x	x	x

87°±2°C

MTE VT 516

46536167
FIAT



D1	40,3
d2	30
A	30,3

P	E	F	V
x	x	x	x

87°±2°C

MTE VT 521

1S7G-8575-AF
FORD



D1	-
d2	30
A	39,8

P	E	F	V
x	x	x	x

98°±2°C

MTE VT 525

5S6G-8575-AB
FORD



D1	34
d2	35
A	46

P	E	F	V
x	x	x	x

100°±2°C

MTE VT 549

166.203.02.75
MERCEDES-BENZ



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

87°±2°C

MTE VT 550

266.203.02.75
MERCEDES-BENZ



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

87°±2°C

MTE VT 560

30650023
VOLVO



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

90°±2°C

MTE VT 562

030.121.111.S
VOLKSWAGEN



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

87°±2°C

MTE VT 563

030.121.111.T
VOLKSWAGEN



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

87°±2°C

MTE VT 564

032.121.121.M
032.121.121.N
VW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

109°±2°C

MTE VT 565

06A.121.111.A
VOLKSWAGEN



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

105°±2°C

MTE VT 566

06B.121.111.D
06B.121.111.G
06B.121.111.H
06B.121.111.K
VOLKSWAGEN



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

100°±2°C

MTE VT 567

06F.121.111
VW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

109°±2°C

MTE VT 600

19300-KE8-000
HONDA



D1	52
d2	-
A	23

P	E	F	V
x	x	x	x

82°±2°C

MTE VT 601

032121026CF
032121026BA
032121026SC
VW



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

80°±2°C

MTE VT 625

5S6G-8575-BA
FORD



D1	-
d2	34,9
A	53,3

P	E	F	V
x	x	x	x

100° ± 2°C

MTE VT 626

5535311
71770832
ALFA ROMEO
96980318
96984104
GM-CHEVROLET
71744389
FIAT
96984104
PONTIAC
1338177
1338178
6338007
6338018
6338044
6338047
OPEL



D1	-
d2	25
A	37,5

P	E	F	V
x	x	x	x

105° ± 2°C

MTE VT 627

5S6G-8575-BA
FORD



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

100° ± 2°C

MTE VT 629

21360430
VOLVO



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

86° ± 2°C

MTE VT 630

1935712
SCANIA



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

80°C
87°C
80° ± 2°C
87° ± 2°C

MTE VT 631

1338.E4
CITROËN
PEUGEOT



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

105° ± 2°C

MTE VT 632

96.509.262.80
CITROËN
1336.Z2
PEUGEOT



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

103° ± 2°C

MTE VT 633

1336.Z6
CITROËN
PEUGEOT



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

105° ± 2°C

MTE VT 635

19301RAF003
19301RAF004
HONDA



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

78° ± 2°C

MTE VT 636

12571261
GM



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

86° ± 2°C

MTE VT 637

9091603138
TOYOTA



D1	-
d2	-
A	-

P	E	F	V
x	x	x	x

76° ± 2°C

Operation

They are commutators that activate several products in the cooling system, according to the engine's temperature.

Application

- **Electric-blower (fan):** activates the Electric-blower (fan), forcing the passage of air through the radiator and causing the reduction of cooling fluid's temperature.
- **Warning lamp-Alarm:** activates a warning lamp or alarm, informing a possible overheating in the cooling system.

Operation Principle

The main component of Thermostitches used on the automotive systems is the bimetallic disc. Formed by two metals with different thermal expansion coefficients, the bimetallic disc is calibrated to snap at a specific temperature. This deformation causes the pin displacement that closes the silver contacts. **ON OFF (Fig.1).**

Important: Some vehicle models use a Thermostitch in conjunction with a Temperature Sensor, called DUPLEX. This switch not only informs the temperature excess to the instrument panel bay (warning lamp or alarm), but also activates the gauge that informs the cooling fluid temperature increase.
(For more information please refer to the Temperature Sensor chapter).

Location

When used to activate the fan, the **Thermostitch** will be located in the vehicle's radiator. When used to activate a warning lamp or alarm, it might be located near the Thermostatic Valve or several other places in the engine.

Use

Used to:

- Activate the fan when the fluid's temperature in the radiator exceeds the specified limit. This usually occurs with the vehicle operating in heavy traffic.
- Activate a warning, which can be either a warning lamp in the vehicle's instrument panel or an alarm.

When it does not work.

- The fluid's temperature in the radiator increases so much that it boils and causes the engine to overheat, burning and deforming the cylinder's head gasket, damaging to hoses, leaking of fluid and etc.

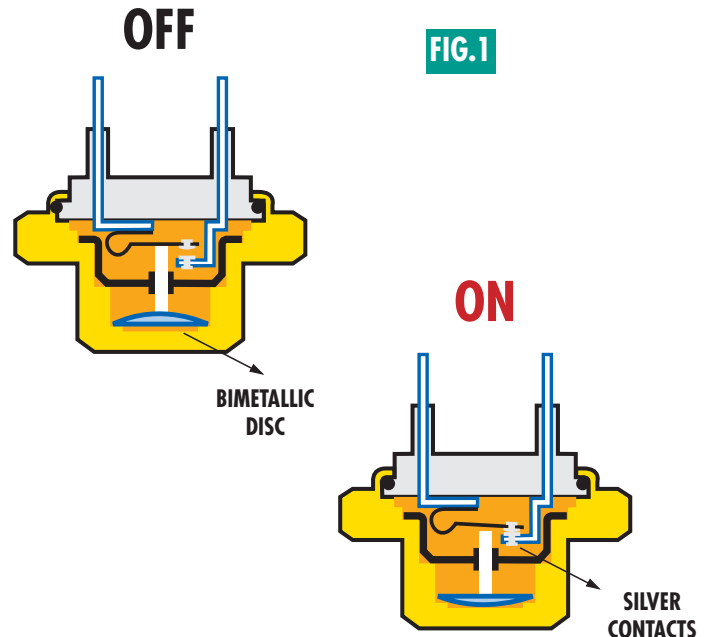
Diagnostic

1. The switch does not activate - Inoperative.
2. The switch activates out of the specified temperature.
In both cases the diagnostic can be performed in the factory, with the use of specific test equipment.

Activation Temperatures

There is an indication of the activation temperature in all products' codes.

- **Switch of 01 (one) temperature with 01 terminal:**
MTE Number: **3046.115 ON** at 115°C.
- **Switch of 01 (one) temperature with 02 terminals:**
MTE Number: **705.92/87 ON** at 92°C and **OFF** at 87°C.
- **Switch of 02 (two) temperatures:**
MTE Number: **717.95-102 ON** at 95°C the fan first speed and **ON** at 102°C the fan second speed. **Used on vehicles equipped with air conditioner.**



Maintenance

Important actions when to changing the switch:

- Avoid excessive tightening.
- Bleed the air (remove air bubbles) from the cooling system.

Cares

- Always check the correct Thermostitch for each vehicle model.
- Never perform a maintenance repair while the cooling system is hot. There is a great risk of burning traumas.
- At any symptom of excessive temperature, park the vehicle in a safe place and turn off the engine immediately.
- Check the cooling fluid level weekly, with the engine cold.
- Always use the specified cooling fluid and the correct rate.
- Do not complete the cooling system with pure water, because this will dilute the ethylene glycol concentration.
- Any reduction in the cooling fluid level indicates a leaking in the cooling system.
- Perform the preventive maintenance of the thermostitches every 30.000 Km.

Warranty

- The MTE-THOMSON products are warranted by 01 year against manufacture or material defects, starting from the purchase date, by the final user.
- The warranty is not valid for parts damaged due to installation errors, wrong application or accident.
- The replacement will occur in the purchase place, by means of the presentation of the purchase bill, according to the description on the Warranty Procedures.
- This warranty is valid only for MTE-THOMSON products.

Função

São comutadores (Liga-Desliga) que acionam diversos produtos no sistema de arrefecimento em função da temperatura.

Aplicação

- **Eleto-ventilador (ventoinha):** aciona o Eleto-ventilador (ventoinha) para forçar a entrada de ar pelo radiador e assim diminuir a temperatura do líquido de arrefecimento.
- **Lâmpada - Alarme:** aciona uma lâmpada ou alarme informando possível excesso de temperatura no sistema de arrefecimento.

Princípio de Funcionamento

Os Interruptores Térmicos utilizados nos sistemas automotivos utilizam basicamente um Disco Bimetálico, ou seja, dois metais com dilatações térmicas distintas calibrados em uma temperatura específica. A deformação do bimetal, provoca o deslocamento do pino, acionando os contatos de prata. **(Liga-Desliga). (Fig. 1).**

Importante:

Alguns modelos de veículos utilizam um Interruptor Térmico junto com um Sensor de Temperatura, chamado DUPLEX. Este Interruptor além de informar excesso de temperatura ao painel através da lâmpada ou alarme também aciona um ponteiro para informar a elevação de temperatura do líquido.

(veja mais informações no capítulo Sensor de Temperatura).

Localização

Interruptor Térmico: para o acionamento da ventoinha, localizado no Radiador do veículo. No caso da lâmpada ou alarme, próximo a Válvula Termostática e diversos outros locais do motor.

Utilização

Utilizado para:

- Ventoinha: Aciona a ventoinha em quando a temperatura do líquido no radiador exceder do limite especificado. Geralmente com o veículo parado no trânsito ou congestionamento.
- Aciona um aviso através de uma lâmpada ou alarme localizados no painel do veículo.

Quando não funciona

- O líquido no radiador aumenta tanto a temperatura que entra em ebulição, provocando um superaquecimento no motor ocasionando queima da junta de cabeçote, empenamento de cabeçote estrago nas mangueiras, perda de líquido, etc.

Diagnóstico

1. O Interruptor não aciona - Inoperante.

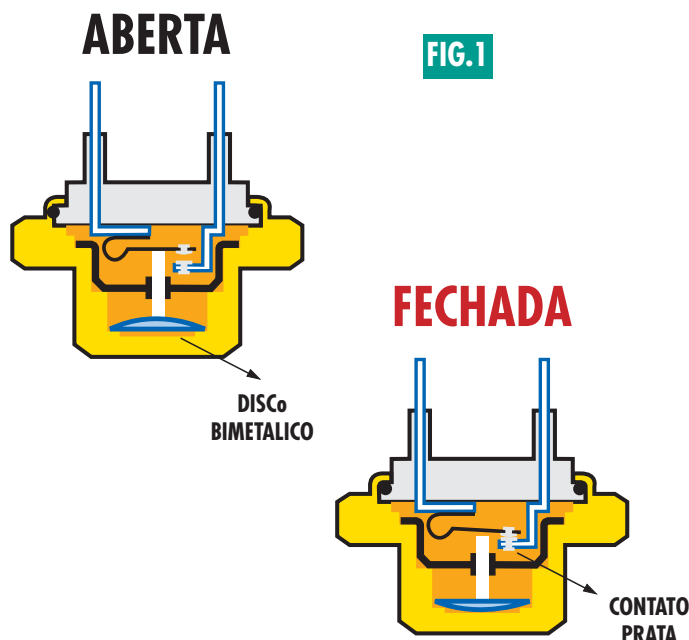
2. O Interruptor aciona fora da temperatura especificada.

Nos dois casos, o diagnóstico pode ser realizado na fábrica com um equipamento de teste específico.

Temperaturas de acionamento

Em todos os códigos dos produtos existe a temperatura de acionamento.

- **Interruptor de 01 (uma) temperatura com 01 terminal:**
Número MTE: **3046.115 LIGA** com 115°C.
- **Interruptor de 01 (uma) temperatura com 02 terminais:**
Número MTE: **705.92/87 LIGA** com 92°C e **DESliga** com 87°C.
- **Interruptor de 02 (duas) temperaturas:**
Número MTE: **717.95-102 LIGA** com 95°C a primeira velocidade da ventoinha e **LIGA** com 102°C a segunda. **Utilizado em veículos com Ar Condicionado.**



Manutenção

Cuidados quando trocar o Interruptor:

- Deve-se evitar o excesso de aperto.
- Fazer a sangria (retirada do ar) do sistema de arrefecimento.

Cuidados

- Verifique sempre o Interruptor Térmico correto para cada modelo do veículo.
- Nunca faça manutenção com o sistema de arrefecimento quente. Grande risco de queimaduras.
- Qualquer sintoma de excesso de temperatura, estacione em local seguro e desligue o motor imediatamente.
- Checar o nível do líquido semanalmente com o motor frio.
- Utilizar sempre o líquido de arrefecimento especificado e na proporção correta.
- Não completar com água pura, pois dilui a concentração do etileno-glicol.
- Diminuição do nível do líquido, deve ter algum vazamento no sistema.
- Faça sempre a manutenção preventiva dos Interruptores a cada 30.000 Km.

Garantia

Os produtos da MTE-THOMSON possuem garantia de 01 ano contra defeitos de fabricação ou material, a partir da data da compra pelo usuário final.

A garantia não tem validade para peças danificadas por erros de instalação, aplicação ou acidente.

A reposição ocorrerá no local da compra mediante apresentação da nota fiscal, conforme descrito no Procedimento de Garantia.

Esta garantia é válida apenas para os produtos da MTE-THOMSON.

MTE 702

026.919.521.2
FORD
VOLKSWAGEN



MTE 703

026.919.521.3
FORD
VOLKSWAGEN



MTE 705

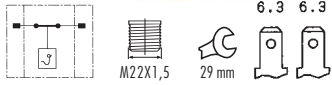
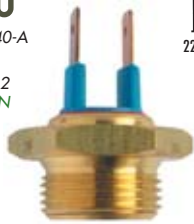
4318331
FIAT
81NU-14806-A
FORD
94.621.028
GM
ZBA.959.481
823.959.481.F
VOLKSWAGEN



95/85°C 65/55°C
95/90°C 70/65°C
97/92°C 75/70°C
100/95°C 77/72°C
103/98°C 82/68°C
82/72°C
86/76°C 82/77°C
OPTIONAL 85/80°C
92/87°C 87/82°C
ORIGINAL 88/79°C
90/80°C
92/82°C
92/87°C

MTE 706

85AU-10W840-A
FORD
026.919.369.2
VOLKSWAGEN



MTE 708

7512921
FIAT



MTE 710

86AU-14806-A
FORD



MTE 713

026.919.369.3
VOLKSWAGEN



MTE 714

026.919.369.5
FORD
VOLKSWAGEN



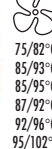
MTE 715

026.131.851.1
VOLKSWAGEN



MTE 717

321.959.481.C
FORD
SE-023952600-A
SEAT
251.959.481.H
321.959.481.C
VOLKSWAGEN
3451216-0
VOLVO

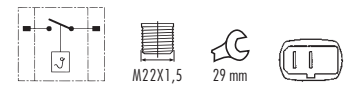


MTE 718

321.959.481.B/E/G
SEAT
307.959.481.1
VOLKSWAGEN
416584-5
VOLVO



82°C
88°C
92°C
95°C



MTE 719

026.919.369.4
FORD
VOLKSWAGEN



MTE 723

026.919.369.1
035.919.369.C
AUDI
SEAT
VOLKSWAGEN



MTE 724

053.919.369.1
FORD
191.919.521.A
AUDI
VOLKSWAGEN



MTE 725

7738582
46477717
FIAT
60809247
ALFA ROMEO
1264.33
PEUGEOT
CITROËN



87/92°C
92/97°C



MTE 726

5992746 - 7728057
50000969 - 82477919
LANCIA
FIAT
99460557
IVECO
60585603
ALFA ROMEO
1264.32
PEUGEOT
CITROËN



MTE 727

7576281
50000970
FIAT



MTE 728

7574406
FIAT



MTE 729

4406143
FIAT



MTE 730

384.540.71.45
345.545.78.24
MERCEDES-BENZ



148°C



1/2"x14NPTF



15/16"



MTE 731

7541872
FIAT



50/35°C



NA



M10X1,25



19 mm

MTE 732

7574407
FIAT



45/30°C



NA



M10X1,25



19 mm

MTE 733

027.919.369.1
FORD
VOLKSWAGEN



20/25°C



M10X1,0



19 mm

MTE 734

029.919.369.1
FORD
VOLKSWAGEN



22/30°C



M10X1,0



19 mm

MTE 735

053.919.369.2
FORD
VOLKSWAGEN



85°C



M10X1,0



19 mm

MTE 737

5958828
FIAT



83-87°C
88-92°C



M22X1,5



29 mm



LONG CABLE

MTE 738

053.919.369.6
FORD
VOLKSWAGEN



97°C
110°C



M10X1,0



19 mm

MTE 739

5939615
FIAT



30/40°C



M16X1,5



19 mm

MTE 740

90.242.277
GM
1341011/017
OPEL
VAUXHALL



77/72°C
100/95°C



M22X1,5



29 mm



MTE 741

90.357.303
GM
1307077080
FIAT
1341028
OPEL
VAUXHALL



88/83°C



M22X1,5



29 mm



MTE 742

90.277.288
GM



105/100°C



M22X1,5



29 mm



MTE 743

446300-2660
DENSO
VOLKSWAGEN



107°C



M10X1,0



22 mm



6.3 6.3

MTE 744

446300-2780
DENSO
FIAT



40°C
104°C



M10X1,0



22 mm



6.3 6.3

MTE 745

2TJ.919.501
VOLKSWAGEN



95°C



3/8"x18NPTF



22 mm



6.3 6.3

MTE 746

90.307.873
GM
7570837
FIAT
1341021
OPEL
VAUXHALL



97/92°C



M22X1,5



29 mm



MTE 747

7738581
7642522
46478033
FIAT



83-88°C
88-92°C



M22X1,5



29 mm



1"

MTE 748

055.131.851.C
VOLKSWAGEN



60/50°C



NA



M10X1,0



19 mm

MTE 751

E5FZ-8B607-A
E4FZ-8B607-A
FORD



100°C



1/2"x14



1"

MTE 752

E43F-8B607-AA
E43F-8B607-A
FORD



96°C



1/2"x14



1"

MTE 754

84980304N
NEW HOLLAND



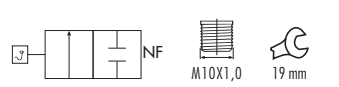
MTE 755

547.959.481
FORD
VOLKSWAGEN



MTE 756

056.131.851
VOLKSWAGEN



MTE 757

547.959.481.A
FORD
VOLKSWAGEN



MTE 758

547.959.481.B
FORD
VOLKSWAGEN



MTE 759

027.131.851
VOLKSWAGEN



MTE 760

90.339.409
GM
1341044
OPEL
VAUXHALL



MTE 761

90.339.408
GM
1341025
OPEL
VAUXHALL



MTE 762

90.376.209
GM
1846325
OPEL
VAUXHALL



MTE 763

90.341.759
GM
1341033
OPEL
VAUXHALL



MTE 764

90.492.454
GM
1846341
OPEL
VAUXHALL



MTE 765

3463731-4
VOLVO



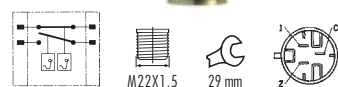
MTE 766

90.339.500
GM
1341023
OPEL
VAUXHALL



MTE 767

90.357.304
GM
1.846.326
OPEL
VAUXHALL



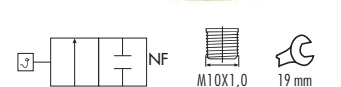
MTE 768

90.449.435
GM
1341030
OPEL
VAUXHALL



MTE 770

058.131.851.A
VOLKSWAGEN



MTE 774

A.382.545.00.24
MERCEDES-BENZ



MTE 775

2TJ.919.501.A
VOLKSWAGEN



MTE 776

E55Z-8B607
FORD



MTE 777

191.959.481.C
VOLKSWAGEN



MTE 778

321.959.481.D
AUDI
VOLKSWAGEN



85-95°C
85-93°C
95-102°C



M22X1,5

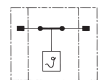
29 mm

MTE 779

73168
MAXION
MASSEY
PERKINS



50°C



3/8"X18NPTF

22 mm

6.3 6.3

MTE 782

823842
NEW HOLLAND



103°C



1/2"X18NPTF

15/16"

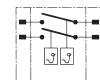
M4

MTE 785

1HO.959.481.C
SEAT
1HO.959.481
VOLKSWAGEN



90-97°C



M22X1,5

22 mm

MTE 786

701.959.481
VOLKSWAGEN



87-92°C



M22X1,5

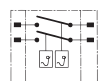
22 mm

MTE 787

1HO.959.481.B
VOLKSWAGEN



92-102°C



M22X1,5

22 mm

MTE 788

21595.60A00
NISSAN



85/80°C
92/87°C



M16X1,5

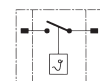
22 mm

MTE 789

21595.04F04
NISSAN



85/80°C
92/87°C



M16X1,5

22 mm

MTE 790

21595.02E00
NISSAN



92/88°C
102/95°C



M16X1,5

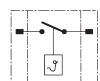
22 mm

MTE 791

21595.36A00
NISSAN



84/77°C
92/87°C



M16X1,5

22 mm

MTE 792

21595.01A00
NISSAN



87/77°C
92/87°C



M16X1,5

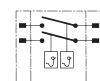
22 mm

MTE 794

701.959.481.C
VOLKSWAGEN



80-87°C



M22X1,5

22 mm

MTE 795

867.959.481
VOLKSWAGEN



95/90°C



M22X1,5

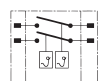
22 mm

MTE 796

90.355.080
GM
1.341.039
OPEL
VAUXHALL



105-95°C



M22X1,5

29 mm

MTE 797

90.506.498
GM
1341042
OPEL
VAUXHALL



100-105°C



M22X1,5

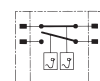
29 mm

MTE 798

90.399.414
GM
1.846.324
OPEL
VAUXHALL



110-120°C



M22X1,5

29 mm

MTE 799

6007.011.146.00.7
AGRALE



117°C



M10X1,0

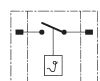
19 mm

MTE 800

61.31.1.364.273
BMW



102/97°C



M14X1,5

22 mm

4.8 4.8

MTE 801

61.31.1.364.272
BMW



95/90°C
103/98°C



M14X1,5

22 mm

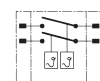
6.3 6.3

MTE 802

1JO.959.481.A
AUDI
SEAT
VOLKSWAGEN



95-102°C



M22X1,5

29 mm

MTE 803

1JO.959.481
6XO.959.481
AUDI
SEAT
VOLKSWAGEN



MTE 804

92AB-8B607-AA
FORD



MTE 805

191.919.521.B
053.919.521
AUDI
SEAT
VOLKSWAGEN



MTE 806

171.919.521.F
AUDI
VOLKSWAGEN



MTE 807

035.919.369.B
AUDI
VOLKSWAGEN
SE-021.016.321.A
SE-021.952.000.B
SEAT



MTE 808

446300-2780
DENSO
FIAT



MTE 809

90.355.879
GM
1.341.027
OPEL



MTE 810

37773-PH1-003
37773-PH1-621
HONDA



MTE 811

37760-P00-003
37760-P00-004
HONDA



MTE 812

37773-PT3-A01
HONDA



MTE 813

MB-356704
MB-660663
MB-845063
MITSUBISHI



MTE 814

89428-33010
TOYOTA



MTE 815

25360-21100
25360-21110
25360-21200
26360-21201
HYUNDAI



MTE 816

25360-33010
25360-33011
HYUNDAI



MTE 817

96.128.754
CITROËN
1264.29
PEUGEOT



MTE 818

N350-18.840
MAZDA



MTE 819

B6S7-18.840
MAZDA



MTE 820

85AB-8B607-A3A
89FB-8B607-A1A
FORD



MTE 821

7700.782.503
7700.812.371
RENAULT



MTE 822

96.009.503
CITROËN
1264.23
PEUGEOT



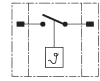
MTE 823

96.064.561
CITROËN
1264.26
PEUGEOT



MTE 824

93.123.564
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1264.31
PEUGEOT



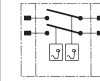
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PEUGEOT



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PEUGEOT



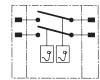
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89BB-8B607-AC
FORD



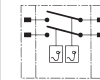
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MTE 830

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RENAULT



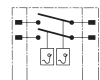
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7701.036.113
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MERCEDES-BENZ



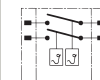
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MTE 836

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BMW



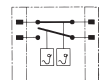
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MB-890504
MITSUBISHI



MTE 838

93.324.879
GM



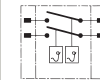
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BMW



MTE 840

8DO.959.481.B
AUDI
VOLKSWAGEN



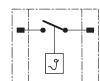
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7700.786.460
7700.771.786
RENAULT



MTE 842

7700.073.757
RENAULT
3343725-2
VOLVO



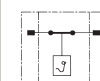
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96.008.159
CITROËN
0242.78
PEUGEOT



MTE 844

191.919.369.A
AUDI
SEAT
VOLKSWAGEN



MTE 845

251.919.369.B
SEAT
VOLKSWAGEN



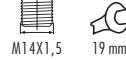
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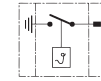
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MTE 848

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CITROËN
0242.76
PEUGEOT



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BMW



MTE 850

357.919.369.E
SKODA
SEAT
VOLKSWAGEN



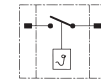
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701.919.369.E
SEAT
VOLKSWAGEN



MTE 852

1338.40
PEUGEOT



MTE 853

96.142.336
CITROËN
1338.27
PEUGEOT



MTE 854

191.919.369.B
VOLKSWAGEN



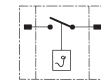
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251.919.369.F
VOLKSWAGEN



MTE 856

357.919.369.F
AUDI
SEAT
VOLKSWAGEN



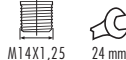
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RENAULT



MTE 858

7700.260.972
RENAULT



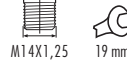
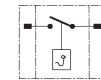
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6025.106.007
RENAULT



MTE 860

7700.809.907
RENAULT



MTE 861

005.545.70.24
006.545.44.24
MERCEDES-BENZ



MTE 862

006.545.14.24
006.545.39.24
MERCEDES-BENZ



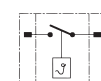
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006.545.37.24
MERCEDES-BENZ



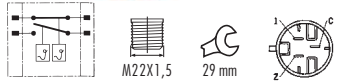
MTE 864

92FB-8B607-AB
FORD



MTE 865

90.482.428
GM



M22X1,5 29 mm

MTE 866

46406747
FIAT



M14X1,5 21 mm

MTE 868

25360-37100
HYUNDAI



M16X1,5 21 mm

MTE 869

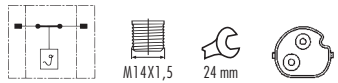
83430-87104
DAIHATSU



3/8"XGAS 17 mm

MTE 870

61.319.401.973
BMW



M14X1,5 24 mm

MTE 871

89428-12160
TOYOTA



M16X1,5 17 mm

MTE 872

89428-10120
DAIHATSU
TOYOTA



M16X1,5 17 mm

MTE 875

61.318.376.440
BMW



M14X1,5 24 mm

MTE 876

61.318.366.135
BMW



M14X1,5 24 mm

MTE 878

535.919.521
VOLKSWAGEN



M10X1,0 19 mm

MTE 879

0242.86
CITROËN
PEUGEOT



M14X1,25 19 mm

MTE 880

191.919.521.D
SEAT
VOLKSWAGEN



M10X1,0 19 mm

MTE 881

021.919.369
VOLKSWAGEN



19,7 mm

MTE 882

17680-50F00
SUZUKI



M18X1,5 24 mm

MTE 883

37760-PHM-004
HONDA



M18X1,5 24 mm

MTE 884

37761-PDA-E01
HONDA



24 mm

MTE 885

007.545.45.24
MERCEDES-BENZ



M14X1,5 22 mm

MTE 886

1264.49
CITROËN



M22X1,5 29 mm

MTE 887

99452677
IVECO



M8X1,25 19 mm

MTE 891

701.919.369F
VOLKSWAGEN



20 mm

MTE 892

1H0.959.625
SEAT
VOLKSWAGEN



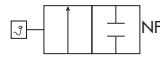
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89428-20110
TOYOTA



MTE 899

FIAT



MTE 915

97AB-8B607-AA
FORD



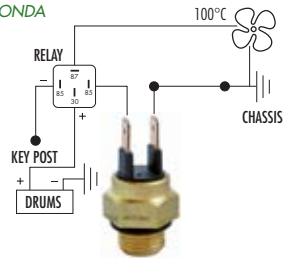
MTE 943

89BB-8B607-DB
FORD



MTE 990

37760-MT2-003
HONDA



MTE 3000

029.919.521.1
VOLKSWAGEN



MTE 3002

ZBA.919.521.B
VOLKSWAGEN



MTE 3007

81312500
VALTRA



MTE 3008

818.330
HYSTER



MTE 3044

T11.963.107
VOLKSWAGEN



MTE 3046

7588920
FIAT



MTE 3049-C

9.056.850.9.002.9
MWM

345.545.78.24
A.384.545.72.24
MERCEDES-BENZ



MTE 3049-L

004.545.55.24
MERCEDES-BENZ



MTE 3718

E3TZ-10884-A
FORD



MTE 3719

3053247
14043276
GM



MTE 3720

E92Z-10884-A
FORD



MTE 3721

89428-10050
89428-10050-000
89428-30090
TOYOTA



MTE 3722

89428-15011
89428-32010
TOYOTA



MTE 3723

89428-28030
TOYOTA



MTE 3724

89428-10100
89428-10110
89428-10090
TOYOTA



MTE 3725

19022026
MAZDA
89428-14070
TOYOTA



MTE 3726

8.94381.219-0
ISUZU



MTE 3727

89428-20060
TOYOTA



MTE 3728

PN41-18-840
MAZDA



MTE 3730

14.043.276
GM



MTE 3731

14.001.889
3040674
GM



112/102°C
215°F



MTE 3732

E7ZZ-8B607-A
FORD



109°C
228°F



MTE 3734

E0ZZ-8B607-A
FORD



104°C
219°F



MTE 3735

3053247
14.043.276
GM



114°C
237°F



MTE 3736

14043275
GM



105°C
221°F



MTE 3737

3053190
GM



100°C
212°F



MTE 3738

3053247
14043276
GM



77°C
171°F



MTE 3739

25036586
GM



160°C
320°F



MTE 3740

25036035
25036136
25036300
25036324
25036371
25036373
25036377
25036468
GM



128°C
263°F

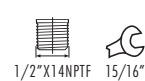


MTE 3741

4221284
CHRYSLER



88°C
190°F
93°C
200°F



MTE 3742

25.036.035
GM



124°C
255°F



MTE 3743

25036317
25037177
GM



116°C
240°F

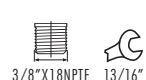


MTE 3744

MB007639
MITSUBISHI



88°C
191°F



MTE 3750

83430-87101-000
DAIHATSU



93°C
200°F

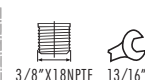


MTE 3751

3040674
14.001.889
GM



110°C
230°F



Operation

They are "Thermometers" that convert temperature into electric signals in order to be interpreted by on-board electronic systems.

Application

- **Engine Temperature:** Measures the cooling fluid's temperature in engines cooled by water and the oil temperature in engines cooled by air.

Operation Principle

The main component used on Temperature Sensors for automotive systems are Thermistors (NTC type resistors). These Sensors are composed by a capsule or support, where the NTC element is assembled (Fig.1).

As showed the (Fig.2), the main feature of the Thermistor (NTC: Negative Temperature Coefficient) is presenting an accentuated variation of its electric resistance in relation to its the temperature.

Temperature increase → resistance reduction
 Temperature reduction → resistance increase

The Sensor assembly depends on the application intended. When intended for engine's temperature measurement, the NTC element is located inside a protection capsule, isolating it from the cooling fluid.

Important: Some vehicle models use a Temperature Sender in conjunction with a Thermostat, called DUPLEX. This sensor not only activates the gauge that informs the cooling fluid temperature increase, but also informs the temperature excess to the instrument panel bay (warning lamp or alarm).
 (For more information please refer to the Thermostat chapter).

Location

Engine Temperature Sensor: In the Thermostatic Valve, in the engine block or in the intake manifold base, in cases where the cooling fluid flows through it (engines powered by alcohol).

Use

Engine Temperature Sender - Used to:

- Indicate through a gauge the engine cooling fluid temperature.
- Control the gasoline injection of cold start in ethanol powered vehicles.

When it does not work

- **Engine Temperature Sender:** Indicates temperature incorrectly, possibly allowing the engine to overheat.

Maintenance

Important actions when to changing the Plug:

- Avoid excessive tightening.
- Bleed the air (remove air bubbles) from the cooling system.

Diagnostic

For these Senders there are three failure types:

1. The Sender sends the wrong information, but inside the working range.
2. The Sender sends the wrong information out of the working range. (Sensor in short or open).
3. The information is wrong (short or open) for certain temperatures (intermittent failure). In all cases, the diagnostic can be accomplished with the use of test equipment ("scanner") or voltmeter.

FIG.1
TEMPERATURE SENDER

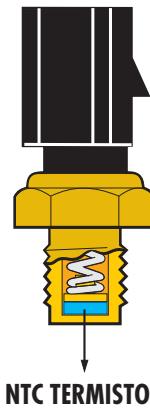
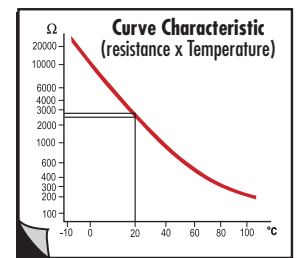


FIG.2



For case 1: Using the correct scale in the voltmeter, compare the reading with the actual engine temperature.

For case 2: Sender in short - Zero value on screen - Opened Sender: No value on the screen.

For case 3: With the sender connected and using a voltmeter, check the presence of eventual non continuity (tension peaks) in the sensor's signal measurement, while the engine heats from environment temperature until normal working temperature. To check the calibration, in addition to the ohmmeter, it is indispensable to have in hands the calibration schedule supplied by the manufacturer.

Cares

- Always check the correct Temperature Sender for each vehicle model.
- Never perform a maintenance repair while the cooling system is hot. There is a great risk of burning traumas.
- At any symptom of excessive temperature, park the vehicle in a safe place and turn off the engine immediately.
- Check the cooling fluid level weekly, with the engine cold.
- Always use the specified cooling fluid and the correct rate.
- Do not complete the cooling system with pure water, because this will dilute the ethylene glycol concentration.
- Any reduction in the cooling fluid level indicates a leaking in the cooling system.
- Perform the preventive maintenance of the temperature sender every 30.000 Km.

Warranty

- The MTE-THOMSON products are warranted by 01 year against manufacture or material defects, starting from the purchase date, by the final user.
- The warranty is not valid for parts damaged due to installation errors, wrong application or accident.
- The replacement will occur in the purchase place, by means of the presentation of the purchase bill, according to the description on the Warranty Procedures.
- This warranty is valid only for MTE-THOMSON products.

Função

São "Termômetros" que transformam temperatura em sinais elétricos para serem interpretados pelo painel do veículo.

Aplicação

Temperatura do motor: Mede a temperatura do líquido arrefecedor nos motores refrigerados a água e a temperatura do óleo nos motores refrigerados a ar.

Princípio de Funcionamento

Os Sensores de Temperatura utilizados nos sistemas automotivos são basicamente termistores (resistores do tipo NTC). Estes sensores são constituídos de uma cápsula ou suporte, onde é montado o elemento NTC (**Fig. 1**). Como mostra a (**Fig. 2**), a principal característica do termistor (NTC, do inglês: Negative Temperature Coefficient ou coeficiente negativo de temperatura) é a de apresentar uma variação acentuada da sua resistência elétrica com relação à temperatura à qual está submetido.

aumento de temperatura → **diminuição da resistênciar**
diminuição de temperatura → **aumento da resistênciar**

A montagem do Sensor depende da aplicação à qual se destina. Naqueles utilizados na medição da temperatura do motor, o elemento NTC fica alojado dentro de uma cápsula de proteção, que o isola do líquido de arrefecimento.

Importante: Alguns modelos de veículos utilizam um Sensor de Temperatura junto com um Interruptor Térmico, chamado DUPLEX. Este Sensor além de informar a temperatura ao painel através do ponteiro também aciona um alarme ou lâmpada para informar excesso de temperatura (veja mais informações no capítulo Interruptor Térmico).

Localização

Sensor de temperatura do motor: na válvula termostática, no bloco do motor ou na base do coletor de admissão, quando por esta circula líquido arrefecedor (motores a álcool).

Utilização

Sensor de Temperatura do motor - Utilizado para:

- Indicar através do ponteiro o valor da temperatura do líquido do motor em graus Celsius.
- Acionar a injeção de gasolina na partida a frio de veículos a álcool.

Quando não funciona

- Sensor de temperatura do motor: Indicação incorreta da temperatura, deixando de se evitar o superaquecimento.

Manutenção

Cuidados quando trocar o Sensor:

- Deve-se evitar o excesso de aperto.
- Fazer a sangria (retirada do ar) do sistema de arrefecimento.

Diagnóstico

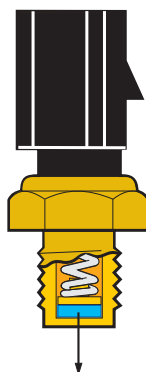
Para estes sensores há três tipos de falha:

1. O Sensor envia a informação errada, dentro da faixa de trabalho.
2. O Sensor envia a informação errada fora da faixa de trabalho.
(Sensor em curto ou aberto).
3. A informação é errada (curto ou aberto) para certas temperaturas.
(falha intermitente).

Em todos os casos, o diagnóstico pode ser realizado utilizando um equipamento de teste: o voltímetro.

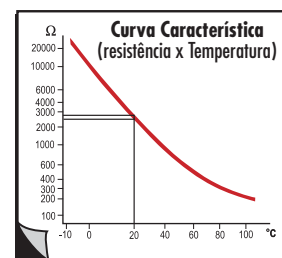
FIG.1

SENSOR DE TEMPERATURA



TERMISTOR NTC

FIG.2



Para o caso 1:

Utilizar o valor de escala correto e comparar com a temperatura real do motor.

Para o caso 2:

Sensor em curto: Valor Zero do display - Sensor Aberto: Nenhum valor no display.

Para o caso 3

Com o Sensor conectado, verificar a presença de eventuais descontinuidades (saltos de tensão) na medição do sinal do Sensor, enquanto o motor aquece desde temperatura ambiente até a normal de trabalho. Para a verificação da calibração, além do ohmímetro, é indispensável dispor da curva característica ou da tabela de calibração fornecidas pelo fabricante.

Cuidados

- Verifique sempre o Sensor de Temperatura correto para cada modelo do veículo.
- Nunca faça manutenção com o sistema de arrefecimento quente.
Grande risco de queimaduras.
- Qualquer sintoma de excesso de temperatura, estacione em local seguro e desligue o motor imediatamente.
- Checar o nível do líquido semanalmente com o motor frio.
- Utilizar sempre o líquido de arrefecimento especificado e na proporção correta.
- Não completar com água pura, pois dilui a concentração do etileno-glicol.
- Diminuição do nível do líquido, deve ter algum vazamento no sistema.
- Faça sempre a manutenção preventiva dos Sensores a cada 30.000 Km.

Garantia

- Os produtos da MTE-THOMSON possuem garantia de 01 ano contra defeitos de fabricação ou material, a partir da data da compra pelo usuário final.
- A garantia não tem validade para peças danificadas por erros de instalação, aplicação ou acidente.
- A reposição ocorrerá no local da compra mediante apresentação da nota fiscal, conforme descrito no Procedimento de Garantia.
- Esta garantia é válida apenas para os produtos da MTE-THOMSON.

MTE 3001

D8NN-10884-AA
FORD



3/8"X18



11/16"



MTE 3003

E1NN-10884-AA
FORD



3/8"X18



22 mm



6.3

MTE 3005

049.919.501.1
FORD
VOLKSWAGEN



M10X1,0



14 mm



6.3

MTE 3009

TE3.919.501
MWM
VOLKSWAGEN



1/8"X27



1/2"



ø 4

MTE 3010

94.639.034
GM



1/8"X27



1/2"



6.3

MTE 3011

94.618.831
GM



M14X1,5



22 mm



6.3

MTE 3012

82EU-10W884 A
FORD



M10X1,0



1/2"



6.3

MTE 3013

026.919.501.1
VOLKSWAGEN



M10X1,0



19 mm



6.3

MTE 3014

026.919.501.2
VOLKSWAGEN



M12X1,5



19 mm



6.3

MTE 3015

026.919.501.4
VOLKSWAGEN



M10X1,0



19 mm



6.3

MTE 3017

94.618.140
GM



1/4"X18



19 mm



M4

MTE 3018

027.919.501.1
FORD
VOLKSWAGEN



M10X1,0



14 mm

MTE 3020

533.133
SCANIA
83420-98001
TOYOTA



M14X1,5



19 mm



6.3

MTE 3021

73620
FORD



M18X1,5



22 mm



6.3

MTE 3022-C

345.542.74.17
MERCEDES-BENZ



M14X1,5



19 mm



M4

MTE 3022-L

345.542.77.17
MERCEDES-BENZ
309065
SCANIA
118280
VALTRA



M14X1,5



19 mm



M4

MTE 3023

D2TU-10884-A
BD2T-10884-A
FORD



3/8"X18



19 mm



6.3

MTE 3024

2.989.473
VOLKSWAGEN



3/8"X18



19 mm



MTE 3025

7.332.773
GM
73100
MAXION
INTERNATIONAL



1/2"X14



15/16"



MTE 3026

67979
SCANIA



3/8"X18



19 mm



M4

MTE 3027

6007.001.523.00.9
AGRALE



M14X1,5

22 mm



MTE 3028

A.695.542.71.17
MERCEDES-BENZ



M14X1,5

19 mm



MTE 3029

03.439.088
90.246.852
93.203.244
GM



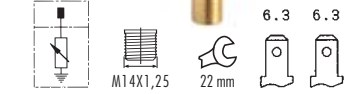
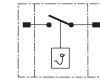
1/8"X27

1/2"



MTE 3030

384.542.71.17
MERCEDES-BENZ



M14X1,25

22 mm



MTE 3031

25.036.135
GM



3/8"X18

21 mm



MTE 3032

028.919.501.1
035.919.501
AUDI
028.919.501.1
VOLKSWAGEN



M10X1,0

12 mm



MTE 3033

2TA.919.501
VOLKSWAGEN



M10X1,0

19 mm



MTE 3036

63998
SCANIA



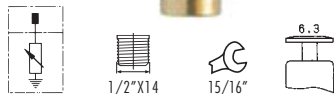
M18X1,5

22 mm



MTE 3037

01.513.321
GMC
CHEVROLET



1/2"X14

15/16"



MTE 3038

7015.011.021.00.4
AGRALE



M14X1,5

19 mm



MTE 3040

7509548
FIAT



M14X1,5

19 mm



MTE 3041

50000102
7588802
7588882
FIAT



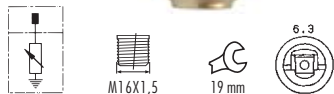
M16X1,5

19 mm



MTE 3042

7504272
FIAT



M16X1,5

19 mm



MTE 3043

7508162
FIAT



M16X1,5

19 mm



MTE 3047

78NU-10884 A
FORD



M14X1,5

22 mm



MTE 3048

88AU-10884-AA
FORD



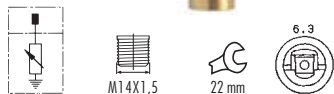
M14X1,5

22 mm



MTE 3050

90VU-10884-AA
FORD
VOLKSWAGEN



M14X1,5

22 mm



MTE 3052

83420-87701-000
DAIHATSU
37750-611-154
HONDA
0118-18-510
0118-89-181
MAZDA
3052 34850-65011
SUZUKI



M16X1,5

11/16"



MTE 3053

9.056.950.9.001.3
MWM



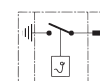
M14X1,5

19 mm



MTE 3054

654271 208
VALTRA



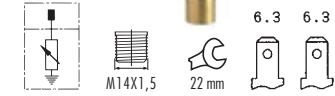
M14X1,5

22 mm



MTE 3056

A.384.542.76.17
MERCEDES-BENZ



MTE 3057

2958320
CHRYSLER
6058836
6098273
77FB-10884 AA
81EB-10884 AA
C3AZ-10884-A
FORD



MTE 3058

A695.542.02.17
MERCEDES-BENZ



MTE 3059

T71.919.501
FORD
VOLKSWAGEN



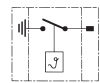
MTE 3060

026.919.521.1
FORD



MTE 3061

84EU-10884 AA
FORD



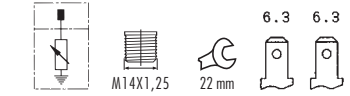
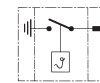
MTE 3062

94650-21010
HYUNDAI
MD 001380
MITSUBISHI
83420-16010
83420-20010
83420-20020
TOYOTA
LEXUS



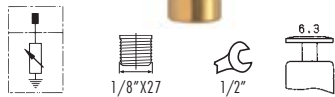
MTE 3063

041.919.521.2
VOLKSWAGEN



MTE 3064

026.919.501.2
VOLKSWAGEN



MTE 3065

026.919.501.4
VOLKSWAGEN



MTE 3066

94.618.140
GM



MTE 3067

027.919.501.1
FORD
VOLKSWAGEN



MTE 3071

7762300
307160.806.378
FIAT



MTE 3072

8118400022
VALTRA



MTE 3074

2TD.919.501.A
VOLKSWAGEN



MTE 3077

94.841.819
GM
82080-4150
SUBARU
83420-12010
83420-20011
TOYOTA
LEXUS



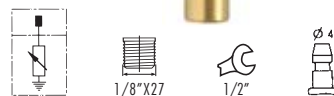
MTE 3078

4051687
CHRYSLER



MTE 3079

73152
73162
FORD
MAXION
MASSEY
PERKINS



MTE 3080

A.376.153.72.28
MERCEDES-BENZ



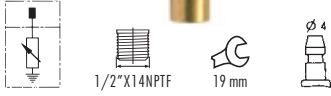
MTE 3082

E6HT-10884-AA
FORD



MTE 3083

TJG.919.501.B
XC45-10884-CA
FORD



1/2"x14NPTF 19 mm ϕ 4

MTE 3085

TJG.919.501.A
VOLKSWAGEN



3/4"x14NPTF 29 mm ϕ 4

MTE 3087

AGRALE



M14X1,5 19 mm

MTE 3088

028.919.501.C
VOLKSWAGEN



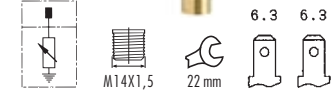
M10X1,0 19 mm

MTE 3090

002.542.73.17
MERCEDES-BENZ



100°C



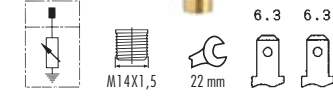
M14X1,5 22 mm 6.3 6.3

MTE 3091

004.542.56.17
MERCEDES-BENZ



105°C



M14X1,5 22 mm 6.3 6.3

MTE 3092

MERCEDES-BENZ



103°C



M14X1,5 22 mm 6.3 6.3

MTE 3094

4720314
DODGE



3/4"x14 11/16"

MTE 3095

56027011
DODGE



1/8"x27 1/2"

MTE 3096

5027012
3096 E-1858 A
CHRYSLER



1/8"x27 1/2"

MTE 3097

25080-X08GO
NISSAN



M12X1,25 15/32"

MTE 3098

UNIVERSAL



130°C



M14X1,5 22 mm 6.3 6.3

MTE 3100

7910247507
ALFA ROMEO
FIAT
LANCIA
0242.20
PEUGEOT
7700.767.336
RENAULT



M14X1,25 16 mm M4

MTE 3101

MERCEDES-BENZ



M14X1,5 19 mm M4

MTE 3102

95.548.678
95.581.212
CITROËN
0242.14
PEUGEOT
7700.503.200
RENAULT



M18X1,5 21 mm 6.3

MTE 3103

SE-021.947.000.C
AUDI
SEAT
SKODA
VOLKSWAGEN



M16X1,5 19 mm 6.3

MTE 3104

4108672
4414600
ALFA ROMEO
FIAT
LANCIA



M16X1,5 19 mm 6.3

MTE 3105

1784077
6076967
81AB-10884-AA
C4AH-10884-A
FORD



1/8"x27 13 mm 6.3

MTE 3106

0242.63
PEUGEOT
7700.686.174
7700.767.102
7701.348.488
RENAULT



14"x1,25 17 mm 6.3

MTE 3107

62.11.0.788.115
BMW



M14X1,5 19 mm 6.3

MTE 3108

679852
3108 679852-4
VOLVO



5/8"x18



17 mm



6.3

MTE 3110

25080-89902
25080-G9500
NISSAN
DATSUN



M16X1,5



17 mm



6.3

MTE 3111

6108298
82GB-10884 BA
FORD



1/8"x27



13 mm



6.3

MTE 3113

60.504.210
ALFA ROMEO
FIAT
LANCIA



M14X1,5



16 mm



6.3

MTE 3114

269085-7
3114 3432833-6
3114 3433761-8
VOLVO



M14X1,25



16 mm



6.3

MTE 3115

3432833-6
VOLVO



M14X1,25



19 mm



6.3

MTE 3116

94650-11402
94650-21020
HYUNDAI



M16X1,5



17 mm



6.3

MTE 3118

97.509.510
97.519.138
CITROËN
1337.72
PEUGEOT



M14X1,25



16 mm



6.3

MTE 3119

83420-87703-000
DAIHATSU
83420-16020
TOYOTA
97650-32500
HYUNDAI
34850-82011
HONDA
8.94247.437.1
ISUZU
B541-18-510
MAZDA
MD091056
MITSUBISHI
21203-AA030
SUBARU



1/8"x28



13 mm



6.3

MTE 3120

25080-89903
NISSAN
DATSUN



M12x1,25



13 mm



6.3

MTE 3121

7542186
ALFA ROMEO
FIAT
LANCIA



M14X1,25



19 mm



6.3

MTE 3122

1H0.919.563
AUDI
SEAT
SKODA
VOLKSWAGEN



M10X1,0



14 mm



6.3

MTE 3123

34850-50A00
34850-82001
34850-85000
SUZUKI



1/8"x27



13 mm



6.3

MTE 3124

89FB-10884 AA
FORD



1/8"x27



13 mm



6.3

MTE 3125

88.00.914
88.59.233
91.08.291
SAAB



1/8"x27



13 mm



6.3

MTE 3126

027.919.501
049.919.501
175.919.501
SE-021.947.000.1
AUDI
SEAT
SKODA
VOLKSWAGEN



M10X1,0



14 mm



6.3

MTE 3129

028.919.501 A
AUDI
SEAT
SKODA
VOLKSWAGEN
1257617-9
VOLVO



M10X1,0



13 mm



6.3

MTE 3130

6136366
6146864
86AB-10884-AA
FORD



1/8"x27



13 mm



6.3

MTE 3131

25080-89900
25251-37700
NISSAN
DATSUN



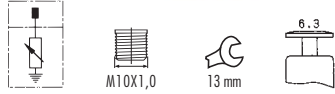
11 mm



6.4

MTE 3132

049.919.563 B
AUDI
SEAT
SKODA
VOLKSWAGEN



MTE 3134

12.62.1.710.512
BMW



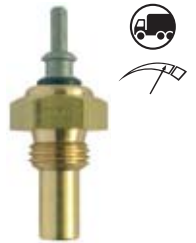
MTE 3135

37750-PCI-004
HONDA
G607-18-510
MAZDA



MTE 3136

005.545.03.24
MERCEDES-BENZ



MTE 3137

83420-87703-030
83420-877303-000
DAIHATSU



MTE 3138

7735919
ALFA ROMEO
FIAT
LANCIA



MTE 3139

83420-87702-00
83420-87702-000
DAIHATSU
37750-PH2-014
HONDA
34850-70B10
SUZUKI



MTE 3140

002.542.10.17
002.542.25.17
005.542.26.17
MERCEDES-BENZ



MTE 3141

25080-C07G0
NISSAN



MTE 3142

7700.771.821
7700.784.113
RENAULT



MTE 3143

1362645
1362645-2
VOLVO



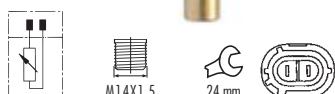
MTE 3144

86VB-10884-BA
FORD



MTE 3145

7700.808.951
RENAULT
70808951-1
VOLVO



MTE 3146

7700.809.909
RENAULT



MTE 3147

008.542.56.17
MERCEDES-BENZ



MTE 3148

008.542.45.17
MERCEDES-BENZ



MTE 3149

96.018.426
CITROËN
1338.09
PEUGEOT



MTE 3150

83420-16040
83420-20030
TOYOTA
LEXUS



MTE 3151

83420-16050
83420-20040
TOYOTA
LEXUS



MTE 3152

251.919.501.A
251.919.501.D
AUDI
SEAT
SKODA
VOLKSWAGEN



MTE 3153

1362-644
1362644-5
VOLVO



MTE 3154

9185687
SAAB



MTE 3155

1362643-7
3515272-7
VOLVO



MTE 3156

006.542.34.17
MERCEDES-BENZ



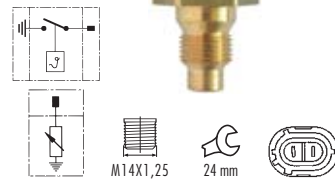
MTE 3158

96.018.422
CITROËN



MTE 3159

7700.778.783
7700.786.466
7700.805.271
7700.810.880
RENAULT



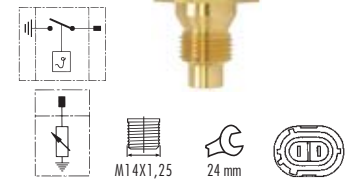
MTE 3160

96.089.138.80
ALFA ROMEO
FIAT
LANCIA
96.089.138
CITROËN
1338.33
PEUGEOT



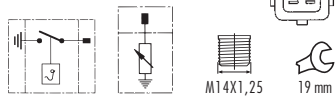
MTE 3161

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RENAULT



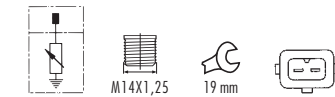
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96.018.422.80
ALFA ROMEO
FIAT
LANCIA
0242.68
CITROËN
PEUGEOT



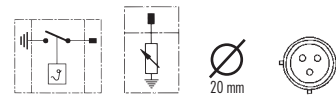
MTE 3163

96.018.427
CITROËN



MTE 3164

053.919.501 A
AUDI
SEAT
SKODA
VOLKSWAGEN



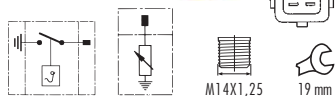
MTE 3165

7700.805.612
RENAULT



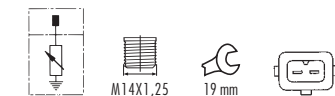
MTE 3166

96.170.510
CITROËN
1131.78
PEUGEOT



MTE 3167

1131.80
CITROËN
PEUGEOT



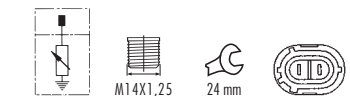
MTE 3168

7700.805.266
RENAULT



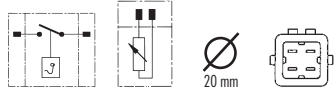
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RENAULT



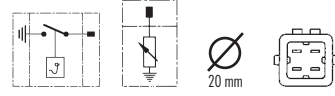
MTE 3170

701.919.369 B
701.919.369 C
AUDI
SEAT
SKODA
VOLKSWAGEN



MTE 3171

7700.829.427
RENAULT



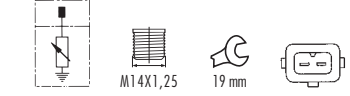
MTE 3173

7700.828.565
RENAULT
9144143-0
9144143-6
VOLVO



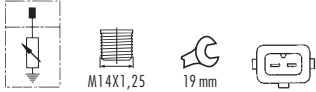
MTE 3174

43
CITROËN
PEUGEOT



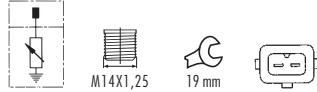
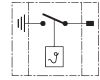
MTE 3175

1338.50
CITROËN
PEUGEOT



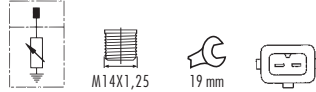
MTE 3176

0242.83
CITROËN
PEUGEOT



MTE 3177

1338.48
CITROËN
PEUGEOT

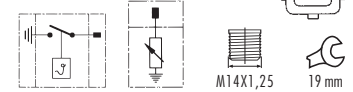


MTE 3178

1338.86
CITROËN
PEUGEOT



3178
9624.350.280
RENAULT



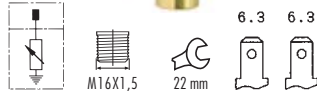
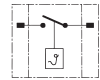
MTE 3179

TER.919.501
FORD



MTE 3180

4837950
504127558
FIAT
IVECO



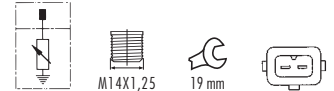
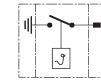
MTE 3187

024285
CITROËN
PEUGEOT



MTE 3188

1338.42
CITROËN
PEUGEOT



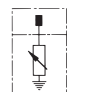
MTE 3191

1338.77
CITROËN
PEUGEOT



MTE 3192

4746856
IVECO



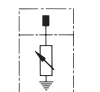
MTE 3197

83420-98002
TOYOTA



MTE 3212

81.274.210.099
81.274.210.125
MACK TRUCK



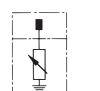
MTE 3228

98FU-10884-BA
FORD



MTE 3229

TAR.919.501
VOLKSWAGEN



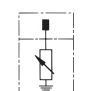
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MITSUBISHI



MTE 3268

TAV.919.501
VOLKSWAGEN



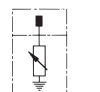
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25080-F41000
NISSAN



MTE 3288

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E1ZZ10884A
F1SF10884AA
F1SZ10884A
F2CZ10884A
FORD



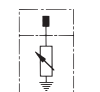
MTE 3292

32446-99
HARLEY
DAVIDSON



MTE 3293

BG5X-12A648-AA
FORD



TEMPERATURE SENDER UNITS THERMOSWITCH

MTE 3293

BG5X-12A648-AA
FORD



3/4"X14

29 mm

Ø 4

MTE 3298

25080 - 89907
NISSAN



M12X1,25

12 mm

6.3

MTE 3301

12556263
CHEVROLET



3/8"X18

19 mm

MTE 3302

12556263
12554641
12554145
GM



3/8"X18

19 mm

MTE 3306

323060
VDO



1/2"X14NPTF

22 mm

M4

MTE 3307

323420
VDO



1/2"X18NPTF

19 mm

6.3

MTE 3308

62717
140401
PETERBILT



1/2"X18NPTF

22 mm

M4

Operation

They are "Thermometers" that convert temperature into electric signals in order to be interpreted by on-board electronic systems.

Application

Used in on-board electronic systems for the following measurements:

- **Engine Temperature:** In the injection/ignition electronic systems, measuring the cooling fluid's temperature in engines cooled by water or the oil's temperature in engines cooled by air.
- **Air Temperature:** In the injection/ignition electronic systems, measuring the temperature of the inlet air.
- **Environment Temperature, inner and outer:** In the electronic climatic systems, measuring the air temperature.
- **Battery Temperature:** In the integrated alternator control systems, measuring the battery temperature.

Operation Principle

The main component used on Temperature Sensors for automotive systems are thermistors (NTC type resistors). These Sensors are composed by a capsule or support, where the NTC element is assembled (Fig.1).

As showed the (Fig.2), the main feature of the thermistor (NTC: Negative Temperature Coefficient) is presenting an accentuated variation of its electric resistance in relation to its the temperature.

Temperature increase → **resistance reduction**
Temperature reduction → **resistance increase**

The Sensor assembly depends on the application intended. When intended for engine's temperature measurement, the NTC element is located inside a protection capsule, isolating it from the cooling fluid.

For Sensors destined to air temperature measurement (air cooling, outer/inner air), the NTC element remains exposed to air flow.

Note: The air cooling temperature (ACT) can be associated to the manifold pressure Sensor (MAP) forming a combined sensor, which in some cases is identified as MAT.

Location

Engine Temperature Sensor: In the Thermostatic Valve, in the engine block or in the intake manifold base, in cases where the cooling fluid flows through it (engines powered by alcohol).

Air cooling Temperature Sensor: In the intake manifold (multipoint systems) or in the cap of the butterfly body (monopoint systems).

Use

Engine Temperature Sensor - Used to:

- **Adjust the fuel mixture:** Enriching mixture while engine is cold.
- **Adjust timing:** Causes delays when engine is hot in order to avoid detonation.
- **Control the radiator's fan.**

When it does not work

- **Engine Temperature Sensor:** Increases consumption and causes hesitation. In early ignition systems can cause engine choking.
- **Air Temperature Sensor:** Detonation; irregular idle speed, overheating.

Maintenance

Important actions when to changing the Temperature Sensor:

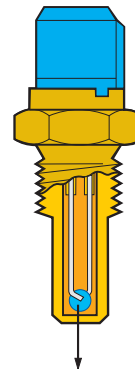
- Avoid excessive tightening.
- Bleed the air (remove air bubbles) from the cooling system.

Diagnostic

For these Sensors there are three failure types:

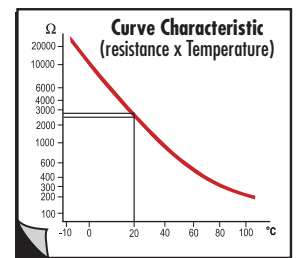
1. The Sensor sends the wrong information, but inside the working range.

FIG.1
TEMPERATURE SENSOR



NTC TERMISTOR

FIG.2



2. The Sensor sends the wrong information out of the working range. (Sensor in hort or open).
 3. The information is wrong (short or open) for certain temperatures (intermittent failure). In all cases, the diagnostic can be accomplished with the use of test equipment ("scanner") or voltmeter.
- For case 1:** Use mode "visualization of operation parameters" and compare with the actual engine's temperature or cooling air temperature.
- For case 2:** Use mode "Read stored failures".
- For case 3:** With the Sensor connected and using a voltmeter, check the presence of eventual non continuity (tension peaks) in the sensor's signal measurement, while the engine heats from environment temperature until normal working temperature. The Sensor analysis (short or open) is performed with the use of an ohmmeter. To check the calibration, in addition to the ohmmeter, it is indispensable to have in hands the calibration schedule supplied by the manufacturer.

Cares

- Always check the correct Temperature Sensor for each vehicle model.
- Never perform a maintenance repair while the cooling system is hot. There is a great risk of burning traumas.
- At any symptom of excessive temperature, park the vehicle in a safe place and turn off the engine immediately.
- Check the cooling fluid level weekly, with the engine cold.
- Always use the specified cooling fluid and the correct rate.
- Do not complete the cooling system with pure water, because this will dilute the ethylene glycol concentration.
- Any reduction in the cooling fluid level indicates a leaking in the cooling system.
- Perform the preventive maintenance of the temperature sender every 30.000 Km.

Warranty

- The MTE-THOMSON products are warranted by 01 year against manufacture or material defects, starting from the purchase date, by the final user.
- The warranty is not valid for parts damaged due to installation errors, wrong application or accident.
- The replacement will occur in the purchase place, by means of the presentation of the purchase bill, according to the description on the Warranty Procedures.
- This warranty is valid only for MTE-THOMSON products.

Função

São "Termômetros" que transformam temperatura em sinais elétricos para serem interpretados pelos módulos de eletrônica embarcada.

Aplicação

São utilizados nos sistemas de eletrônica embarcada nas seguintes medições:

- **Temperatura do motor:** Nos sistemas de injeção/ignição eletrônica, mede a temperatura do líquido arrefecedor nos motores refrigerados a água e a temperatura do óleo nos motores refrigerados a ar.
- **Temperatura do ar:** Nos sistemas de injeção/ignição eletrônica, mede a temperatura do ar admitido.
- **Temperatura ambiente, interior e exterior:** Nos sistemas de climatização eletrônicos, mede a temperatura do ar.
- **Temperatura da bateria:** Nos sistemas integrados de controle do alternador, mede a temperatura da bateria.

Princípio de Funcionamento

Os Plugs Eletrônicos utilizados nos sistemas automotivos são basicamente, termistores resistores do tipo NTC). Estes Plugs são constituídos de uma cápsula ou suporte, onde é montado o elemento NTC. (Fig.1).

Como mostra a (Fig.2), a principal característica do Termistor (NTC, do inglês: Negative Temperature Coefficient ou coeficiente negativo de temperatura) é a de apresentar uma variação acentuada da sua resistência elétrica com relação à temperatura à qual está submetido.

aumento de temperatura —————> **diminuição da resistência**
diminuição de temperatura —————> **aumento da resistência**

A montagem do Plug depende da aplicação à qual se destina. Naqueles utilizados na medição da temperatura do motor, o elemento NTC fica alojado dentro de uma cápsula de proteção, que o isola do líquido de arrefecimento. Nos Plugs destinados à medição da temperatura do ar (ar admitido, ar exterior/interior), o elemento NTC fica exposto à corrente de ar. **Nota:** O Sensor de Temperatura do ar admitido (ACT) pode estar associado ao Sensor de Pressão de Coletor (MAP) formando um sensor combinado, em alguns casos, identificado com a sigla MAT.

Localização

Plug Eletrônico do motor: na Válvula Termostática, no bloco do motor ou na base do coletor de admissão, quando por esta circula líquido arrefecedor (motores a álcool).

Plug Eletrônico do ar admitido: no coletor de admissão (sistemas multiponto) ou na tampa do corpo da borboleta (sistemas monoponto).

Utilização

Plug Eletrônico do motor - Utilizado para:

- Ajuste do teor da mistura: enriquecimento com motor frio.
- Ajuste do avanço: atraso com motor quente para evitar detonação.
- Controle do ventilador do radiador.

Plug Eletrônico do ar admitido - Utilizado para:

- Ajuste do ponto de ignição.
- Cálculo da massa de ar admitida em sistemas "velocidade/densidade".

Quando não funciona

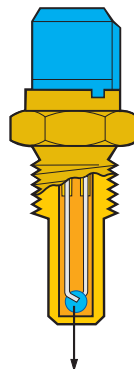
- **Plug Eletrônico do motor:** Aumento de consumo, hesitação, motor sem resposta. Em sistemas de injeção mais antigos pode produzir o afogamento do motor.
- **Plug Eletrônico do ar:** Detonação, marcha lenta irregular, aquecimento excessivo.

Manutenção

Cuidados quando trocar o Plug:

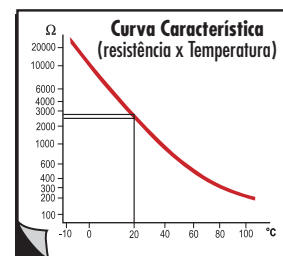
- Deve-se evitar o excesso de aperto.
- Fazer a sangria (retirada do ar) do sistema de arrefecimento.

FIG.1
PLUG
ELETRÔNICO



TERMISTOR NTC

FIG.2



Diagnóstico

Para estes Plugs há três tipos de falha:

1. O Plug envia a informação errada, dentro da faixa de trabalho.
 2. O Plug envia a informação errada fora da faixa de trabalho (curto ou aberto).
 3. A informação é errada (curto ou aberto) para certas temperaturas (falha intermitente).
- Em todos os casos, o diagnóstico pode ser realizado utilizando o equipamento de teste ("scanner") ou voltímetro.

Para o caso 1: Utilizar o modo "visualização de parâmetros de funcionamento" e comparar com a temperatura real do motor ou do ar admitido.

Para o caso 2: Utilizar o modo "ler falhas armazenadas".

Para o caso 3: Com o Plug conectado e utilizando o voltímetro, verificar a presença de eventuais descontinuidades (saltos de tensão) na medição do sinal do Plug, enquanto o motor aquece desde temperatura ambiente até a normal de trabalho. A verificação do Plug (curto ou aberto) é realizada com ohmímetro. Para a verificação da calibração, além do ohmímetro, é indispensável dispor da curva característica ou da tabela de calibração fornecidas pelo fabricante.

Cuidados

- Verifique sempre o plug eletrônico correto para cada modelo do veículo.
- Nunca faça manutenção com o sistema de arrefecimento quente. Grande risco de queimaduras.
- Qualquer sintoma de excesso de temperatura, estacione em local seguro e desligue o motor imediatamente.
- Checar o nível do líquido semanalmente com o motor frio.
- Utilizar sempre o líquido de arrefecimento especificado e na proporção correta.
- Não completar com água pura, pois dilui a concentração do etileno-glicol.
- Diminuição do nível do líquido, deve ter algum vazamento no sistema.
- Faça sempre a manutenção preventiva dos Plugs a cada 30.000 Km.

Garantia

- Os produtos da MTE-THOMSON possuem garantia de 01 ano contra defeitos de fabricação ou material, a partir da data da compra pelo usuário final.
- A garantia não tem validade para peças danificadas por erros de instalação, aplicação ou acidente.
- A reposição ocorrerá no local da compra mediante apresentação da nota fiscal, conforme descrito no Procedimento de Garantia.
- Esta garantia é válida apenas para os produtos da MTE-THOMSON.

MTE 4000

22630-71L00
22630-99B00
NISSAN



MTE 4001

60523383
ALFA ROMEO
13621357414
BMW
22630-N4200
NISSAN



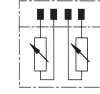
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MERCEDES-BENZ



MTE 4003

008.542.32.17
MERCEDES-BENZ



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GM
55187822
FIAT



MTE 4005

46.472.179
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46.469.865
FIAT
500382599
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2R0.919.501.B
9.6120.06.9.0034
VOLKSWAGEN
20513340
VOLVO



MTE 4006

025.906.041.A
SEAT
VOLKSWAGEN



MTE 4007

90.530.444
GM



MTE 4008

7085083
FIAT
93.313.156
GM



MTE 4009

46.520.384
FIAT



MTE 4010

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A390269350
FIAT



MTE 4011

9137803
SAAB



MTE 4012

MD149338
MITSUBISHI



MTE 4013

078.919.501.B
AUDI
078.919.501.B
VOLKSWAGEN



MTE 4014

059.919.501.A
AUDI
SEAT
VOLKSWAGEN



MTE 4015

22630-70J00
NISSAN



MTE 4016

058.919.501.A
AUDI



MTE 4017

95.640.493
ALFA-ROMEO
1920.C4
PEUGEOT



MTE 4018

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AUDI
SEAT
VOLKSWAGEN



MTE 4019

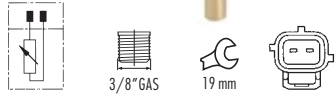
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HYUNDAI
MD069879
MITSUBISHI



COOLANT TEMPERATURE SENSOR

MTE 4020

89422-87202-000
DAIHATSU
MD177572
MD182467
MITSUBISHI



3/8" GAS

19 mm

MTE 4021

035.919.369.M
AUDI
SEAT
VOLKSWAGEN



M14X1,5

19 mm

MTE 4022

90411977
DAEWOO
3447882-6
VOLVO

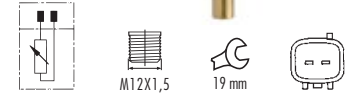


M12X1,5

21 mm

MTE 4023

22630-AA040
22630-AA041
SUBARU



M12X1,5

19 mm

MTE 4024

026.906.161
AUDI
SEAT
030.919.501
VOLKSWAGEN



M10X1,0

19 mm

MTE 4025

22630-51E00
NISSAN



M12X1,5

19 mm

MTE 4026

91AB-10884-AA
FORD

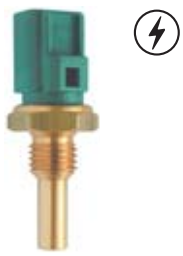


1/8" X27NPTF

22 mm

MTE 4027

A 1600 AA
JAGUAR
MB59318840 A
KIA
B3C8-18-840
B593-18-240 A
MAZDA
13650-61B00
SUZUKI
89422-35010
TOYOTA



M12X1,5

19 mm

MTE 4030

7735919
FIAT



M16X1,5

19 mm

MTE 4031

ETC 8496
LAND ROVER



M12X1,5

19 mm

MTE 4032

113.906.161
VOLKSWAGEN

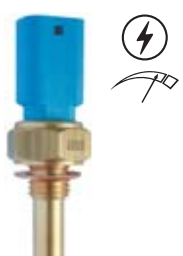


M12X1,5

21 mm

MTE 4033

46474600
FIAT



M12X1,5

21 mm

MTE 4034

357.919.501.A
030.919.501
VOLKSWAGEN



20 mm

MTE 4037

F5AF-12A648-AA
FORD



3/8" X18NPTF

19 mm

MTE 4038

7700.737.571
RENAULT

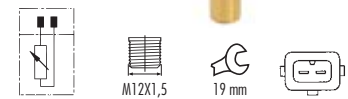


M12X1,5

21 mm

MTE 4039

46449499
ALFA ROMEO

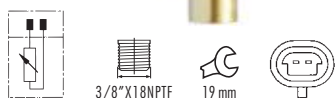


M12X1,5

19 mm

MTE 4040

15.326.386
25036979
GM



3/8" X18NPTF

19 mm

MTE 4041

F2AF-12A648-AA
F2AZ-12A648-A
FORD



3/8" X18NPTF

25 mm

MTE 4042

5226356
CHRYSLER



3/8" X18NPTF

1" 1/16"

MTE 4043

5226374
33004281
CHRYSLER



3/8" X18NPTF

13/16"

COOLANT TEMPERATURE SENSOR

MTE 4044

5226374
33004281
CHRYSLER



MTE 4045

E8GY-12A648-A
FORD
96056758
GM
22630-V5010
NISSAN



MTE 4046

026.906.161.4
FORD
VOLKSWAGEN



MTE 4047

34.906.161
FORD



MTE 4048

7669143
FIAT



MTE 4049

00.073.145
MW.056.901
GM
73145
MAXION
90569200 0018
MWM



MTE 4050

12.146.897
12.191.170
93.247.291
25.036.898
GM



MTE 4051

7770239
5972332
FIAT
90.410.792
93.358.883
FO00TFO100
GM



MTE 4052

90.183.892
GM
7647004
FIAT



MTE 4053

46477022
4850371
7547977
FIAT
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VOLKSWAGEN
1342850
90411977
OPEL/VAUXHALL



MTE 4054

026.906.161.5
VOLKSWAGEN



MTE 4056

A390.269.364
40554602
46554621
7083798
FIAT



MTE 4057

978F-12A648-AA
F77Z-12A648-AA
XU3F-12A648-AA
FORD



MTE 4058

0242.88
PEUGEOT
RENAULT



MTE 4059

60573388
ALFA ROMEO
13.622.242.184
BMW
96.131.480
CITROËN
1920.K9
PEUGEOT



MTE 4060

059.919.501
AUDI
059.919.501
SEAT



MTE 4061

96FB-10884-AA
FORD



MTE 4062

028.919.501.B
VOLKSWAGEN



MTE 4063

46414596
FIAT



MTE 4064

028.919.501
VOLKSWAGEN



MTE 4065

89422-87701-000
DAIHATSU
B574-18-840
MAZDA
13650-84101
SUZUKI
89422-12010
TOYOTA



MTE 4066

7700.865.290
RENAULT



MTE 4067

XS6E-12A648-BA
XS6F-12A648-BA
FORD



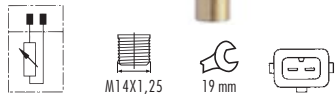
MTE 4068

13621703993
BMW



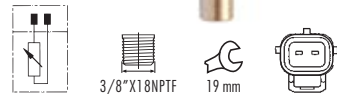
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1338.47
CITROËN
1338.47
PEUGEOT



MTE 4070

F7DZ-10884-AA
FORD



MTE 4071

RF1L-18-840
MAZDA



MTE 4072

LHE-160044
JAGUAR



MTE 4073

46474599
FIAT



MTE 4074

357.919.501
SEAT
VOLKSWAGEN



MTE 4075

1433076
13621433076
BMW



MTE 4076

46753479
ALFA ROMEO
FIAT



MTE 4077

4647599
FIAT



MTE 4078

46469865 ALFA ROMEO
1338.C7 CITROËN
99455420 FIAT
97227219 GM
37870-PLZ-D00 HONDA
1338.C7 PEUGEOT



MTE 4079

96368023
CITROËN
9636777180
FIAT
1338.A7
PEUGEOT
9636777180
RENAULT
89422-02020
TOYOTA



MTE 4080

7738582
46477717
FIAT
60809247
ALFA ROMEO
1264.33
PEUGEOT
CITROËN



MTE 4081

7700.105.087
RENAULT
9110578
GM
22630-00QAD
NISSAN
3088362-3
VOLVO



MTE 4082

96.368.027
CITROËN
9636777280
RENAULT
9631000880
FIAT
1338.A6
PEUGEOT



MTE 4083

96.325.624.80
CITROËN
9632562080
FIAT
256Q-12A648-AA
FORD
1338.C1
PEUGEOT



MTE 4084

1338.C0
CITROËN
9633518580
FIAT
1338.C0
PEUGEOT



MTE 4085

000.542.51.18
MERCEDES-BENZ



15 mm



MTE 4086

30862221
VOLVO



1/8"X27NPTF

21 mm



MTE 4087

9186008
VOLVO



M12X1,5

21 mm



MTE 4088

8933002383
RENAULT



3/8"NPTF

19 mm



MTE 4089

96.033.248
CITROËN
9621000680
FIAT
1338.10
1338.55
PEUGEOT



M14X1,25

19 mm



MTE 4090

89422-87702-000
DAIHATSU



3/8"GAS

19 mm



MTE 4091

22630-51E02
22630-51E10
NISSAN



M12X1,5

19 mm



MTE 4092

XM21-10884-BA
FORD
0135427817
MERCEDES-BENZ
06A.919.501
VOLKSWAGEN



20 mm



MTE 4093

56004815
CHRYSLER



1/8"X27NPTF

1/2"



MTE 4095

251.919.501
VOLKSWAGEN



20 mm



MTE 4096

1338.75
CITROËN
1338.91
PEUGEOT
9623.870.180
RENAULT



M12X1,5

19 mm



MTE 4097

37870-PLC-004
37870-PNA-003
HONDA



M10X1,25

17 mm



MTE 4098

0115425117
DAEWOO
011.542.51.17
MERCEDES-BENZ
2D0.919.369
VOLKSWAGEN



M14X1,25

22 mm



MTE 4099

71716685
71719393
46824133
FIAT



MTE 4100

12.62.1.747.281
12.62.1.710.535
BMW



M14X1,5

19 mm



MTE 4101

900.9.0055.02
3229.V002
3229.V003
SMART



M12X1,5

19 mm



MTE 4102

059.919.563
VOLKSWAGEN



M10x1,0

19 mm



MTE 4103

1338.66
CITROËN
PEUGEOT



PTC

M14X1,25

19 mm



MTE 4106

BG5X-10884-AA
FORD
1.403945
DAF
93159374
IVECO
2R0.919.501.A
VOLKSWAGEN
4897224
CUMMINS



M12X1,5

19 mm



MTE 4107

XS6F-12A648-CA
FORD
31216653
VOLVO



19 mm



MTE 4110

96.368.024
CITROËN



M12X1,5



19 mm



MTE 4111

96566364
CITROËN
1338.F3
1338.F8
PEUGEOT



20 mm



MTE 4138

89422-06010
89422-33030
89422-0H010
TOYOTA



M12X1,5



19 mm



MTE 4139

37750-KPH-701
HONDA



M10X1,25



17 mm



MTE 4141

33004281
5226374
CHRYSLER
25036979
25037082
GM



3/8"X18NPTF



19 mm



MTE 4143

73190
FORD



M12X1,5



19 mm



MTE 4145

GN AUTO



M12X1,5



19 mm



MTE 4146

1S4-83591-00
YAMAHA



MTE 4147

55190791
77363465
FIAT



M12X1,5



19 mm



MTE 4149

5227805
CHRYSLER



3/8"X18NPTF



19 mm



MTE 4150

1300800
BMW



M14X1,5



19 mm



MTE 4152

F3XY10884A
FORD



M12X1,5



19 mm



MTE 4153

7083932
FIAT



MTE 4154

25037333
10096152
GM



1/2"X14NPTF



15/16"



MTE 4155

2100807
2100812
TRIUMPH



M12X1,5



19 mm



MTE 4156

3C34-10884-AA
FORD
1836539C91
NAVISTAR
2U2.919.501
1836537C91
VOLKSWAGEN



M12X1,5



21 mm



MTE 4157

000.905.06.00
MBB



18 mm



MTE 4159

37870-PNA-003
HONDA



M10X1,25



17 mm



MTE 4160

55353807
88353807
ALFA ROMEO
55.353.807
55.563.530
GM



18 mm



MTE 4161

1920.Q2
CITROËN
1920.Q2
PEUGEOT



M12X1,5



19 mm



MTE 4162

39220-38030
KIA



MTE 4165

22630-JA10A
NISSAN



MTE 4166

1675751C1
NAVISTAR
4C40-7H141-BA
4C40-7H141-BA
1675751C1
INTERNATIONAL



MTE 4167

37870-RTA-005
37870-RWC-A01
37870-RZA-007
HONDA



MTE 4168

8L3Z6G004A
F65F6G004AB
F65Z6G004AB
F65Z9G004AB
FORD



MTE 4169

3096153
3865346
4088750
ISB-ISF-ISL
4954905
CUMMINS
2T2.906.041.A
VOLKSWAGEN



MTE 4170

13650-54G00
SUZUKI



MTE 4171

23515251
23514708
DETROIT



MTE 4172

56027873
CHRYSLER
DODGE
JEEP
MITSUBISHI
PLYMOUTH



MTE 4174

3920364
CUMMINS



MTE 4175

4010051
CUMMINS



MTE 4179

059.919.501.A
VOLKSWAGEN



MTE 4180

F65F-10884-AA
F65Z-10884-AA
FORD
LINCOLN



MTE 4182

3F1A-12A648-AA
FORD



MTE 4183

3F1Z-10884-AA
FORD
MAZDA
MERCURY



MTE 4184

3L7Z6G004BA
9L8Z6G004C
FORD
LINCOLN
MERCURY



MTE 4187

4661341
CHRYSLER



MTE 4188

10096181
GM
8100961810
ISUZU



MTE 4189

55223506
MOTOR E-TORQ
FIAT
5269870AB
CHRYSLER
DODGE
JEEP
13621486698
MINI



MTE 4190

E68F10884AA
F68Z10884AA
FORD



MTE 4191

12564512
19244715
8125645120
8192447150
GM



M12X1,75



18 mm

MTE 4192

12586299
12590959
12601050
12606657
12609558
8126010500
GM



M10X1,5



15 mm

MTE 4193

64MT2103
MAK



3/8"X18NPTF



19 mm

MTE 4194

3865312
3081311
CUMMINS



9/16"X18NPTF



21 mm

MTE 4195

23518092
25036693
DETROIT
DIESEL



1/4"X18NPTF



19 mm

MTE 4196

74.20.513.340
RENAULT
20513340
VOLVO



M12X1,5



19 mm

MTE 4198

22630AA140
SUBARU



M12X1,5



19 mm

MTE 4199

F2G818840
MAZDA



M12X1,5



19 mm

MTE 4200

5149077AA
5149077AB
CHRYSLER
68045803AA
DODGE
5149096AA
JEEP
7B0919501B
VOLKSWAGEN



3/8"X18NPTF



19 mm

MTE 4203

6120.919.501
VOLKSWAGEN



M22X1,5



29 mm

MTE 4204

4720315
DODGE



1/2"X14



22 mm

MTE 4206

F7CZ-10884-AA
F7CZ-10884-BA
F77F-10884-BB
F77Z-10887-BA
FORD
F7CZ-10884-BB
MERCURY



1/8"X27



19 mm

MTE 4207

3926903
CUMMINS
INTERNACIONAL
2T0.919.501
VOLKSWAGEN



1/2"X14NPTF



22 mm

MTE 4208

BF8T-12A648-AA
XC2Z-10884-AA
FORD
3356924
4BT - 6BT
CUMMINS



1/2"X14NPTF



22 mm

MTE 4209

99660641000
PORSCHE



M14X1,5



22 mm

MTE 4210

077.919.501.C
AUDI
VOLKSWAGEN



M14X1,5



19 mm

MTE 4211

OK50F-18840
KIA



M12X1,5



19 mm

MTE 4212

91254631
191254630
VOLVO



M12X1,5



19 mm

MTE 4217

55261955
JEEP



Ø 18,3 mm



Ø 18,3 mm

MTE 4218

55261955
JEEP



Ø 18,3 mm



Ø 18,3 mm

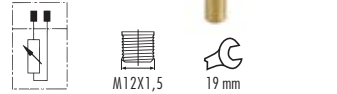
MTE 4219

96476970
GM-CHEVROLET
PONTIAC



MTE 4221

25.186.240
GM-CHEVROLET
1338378
OPEL
VAUXHALL



MTE 4223

96476965
GM
PONTIAC



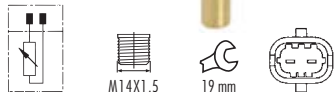
MTE 4225

96.368.027
CITROËN
9636777280
RENAULT
9631000880
FIAT
1338.A6
PEUGEOT



MTE 4226

1426321
DAF
77362294
FIAT



MTE 4227

1342855
OPEL
90573077
VAUXHALL



MTE 4230

OK50F-18840
KIA



MTE 4233

AJ88655
JAGUAR



MTE 4236

1252439
DAF



MTE 4252

3922002500
3922002510
3922002520
3922038010
392203C010
HYUNDAI
3922038010
392203C010
KIA



MTE 4253

004.153.42.28
004.153.43.28
A.004.153.42.28
A.004.153.43.28
MERCEDES-BENZ



MTE 4254

13.621.433.077
13.627.788.077
BMW
MEK105210
LAND ROVER



MTE 4256

82.00.720.768
RENAULT



MTE 4255

89422-16010
DAIHATSU
13650-50F10
13650-50G10
13650-50G20
SUZUKI
SUBARU
89422-16010
89422-22030
TOYOTA
1448377
6M34-12A648-AA
FORD
37870-P7A-005
HONDA
KLK1-18-840
MAZDA



MTE 4257

37870-PJ7-003
37870-PK2-005
HONDA



MTE 4258

1371592
6M5G12A648AA
FORD
LR003203
LAND ROVER
306507752
30750926
8653172
VOLVO



MTE 4259

03F919501B
AUDI
VOLKSWAGEN



MTE 4260

04E919501B
AUDI
VOLKSWAGEN



AIR TEMPERATURE SENSOR

MTE 5029

25037352
GM
8-12160-244-0
ISUZU



19 mm



MTE 5031

12.129.596
GM



MTE 5032

FSB9-18-845
F6SF-12A697-AA
MAZDA
FORD



3/8"X18NPTF

19 mm



MTE 5034

F3DZ-12A697-A
FORD



MTE 5035

21020104
21025106
GM



1/8"X27NPTF



MTE 5036

13.621.718.736
BMW
7686599
FIAT
078.906.161
VOLKSWAGEN



M12X1,5



MTE 5037

25037313
GM



MTE 5038

7700.737.572
RENAULT



M14X1,5



13/16"

MTE 5039

25036708
GM



3/8"X18NPTF



MTE 5040

33004280
CHRYSLER
25036751
GM



3/8"X18NPTF



MTE 5041

F2AF-12A648-AA
FORD
026.906.161.6
VOLKSWAGEN



WHITE



3/8"X18NPTF



MTE 5042

1HM.906.501.A
VOLKSWAGEN



M14X1,5



13/16"

MTE 5043

13.621.730.035
BMW



M12X1,5



MTE 5044

F57Z-12A697-A
FORD



MTE 5045

F5AF-12A697-AA
F5AZ-12A697-A
FORD



MTE 5051

95640497
CITROËN
1920.C5
PEUGEOT



M12X1,5



19 mm

MTE 5053

7547976
FIAT



M14X1,5



MTE 5061

024.905.379.6
VOLKSWAGEN
13.621.711.371
BMW



M12X1,5



MTE 5063

058.905.379
VOLKSWAGEN



MTE 5064

1920.1J
CITROËN
1920.1J
PEUGEOT
7700.101.451
7701.042.145
RENAULT



AIR TEMPERATURE SENSOR

MTE 5065

60.608.083
60.813.345
ALFA ROMEO
7763719
60591909
FIAT
90.442.182
GM
37880-PDF-E01
HONDA
836401
OPEL
6W0.906.081
VOLKSWAGEN



PRETO BLACK

MTE 5066

90411958
GM
MD313486
MITSUBISHI
7700.744.583
RENAULT
30804940
VOLVO



NATURAL

MTE 5067

1920.4G
CITROËN
9627389680
FIAT
22630-00QAA
NISSAN
1920.8Y
1920.9F
PEUGEOT
8200.164.249
RENAULT



VERDE GREEN

MTE 5068

06B.905.379
06B.905.379.A
VOLKSWAGEN



PRETO BLACK

MTE 5069

96183228
DAEWOO
96183228
GM
0K95118831
KIA
7700.271.119
RENAULT
1389556
VOLVO



PRETO BLACK

MTE 5070

BP4W-18-845
MAZDA
22634-KA071
SUBARU
13650-52G00
SUZUKI
89424-12010
TOYOTA



PRETO BLACK

MTE 5071

1920.6C
CITROËN
22693-00QAA
NISSAN
1920.6C
PEUGEOT
7701.055.723
RENAULT



CINZA GREY

MTE 5072

0005422818
DAEWOO
000.542.28.18
MERCEDES-BENZ
2D0.905.379.A
VOLKSWAGEN



PRETO BLACK

MTE 5073

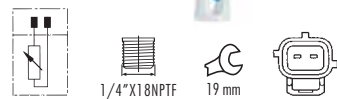
3085185
3085198
CUMMINS
5011402AA
5014197AA
DODGE



PRETO BLACK

MTE 5074

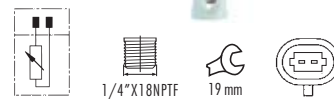
56027872
CHRYSLER
MITSUBISHI



PRETO BLACK

MTE 5075

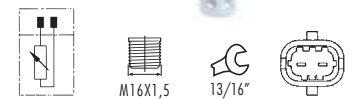
33004280
5269756
CHRYSLER
M33004280
M56027872
MITSUBISHI



PRETO BLACK

MTE 5093

3C3Z-12A697-AA
FORD
1836539C91
NAVISTAR
2U2.906.501
1836539C91
MAN
VOLKSWAGEN



PRETO BLACK

MTE 5094

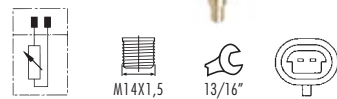
7076354
FIAT
RENAULT
F5PF-18845-AA
FORD
026.998.161.1
VOLKSWAGEN



PRETO BLACK

MTE 5095

4088832
ISC-ISF
CUMMINS
2T2.919.369
2T2.919.501
VOLKSWAGEN



PRETO BLACK

MTE 5096

6.025.101.040.005
AGRALE



PRETO BLACK

MTE 5097

3408345
3865345
3865366
DODGE
CUMMINS



PRETO BLACK

MTE 5098

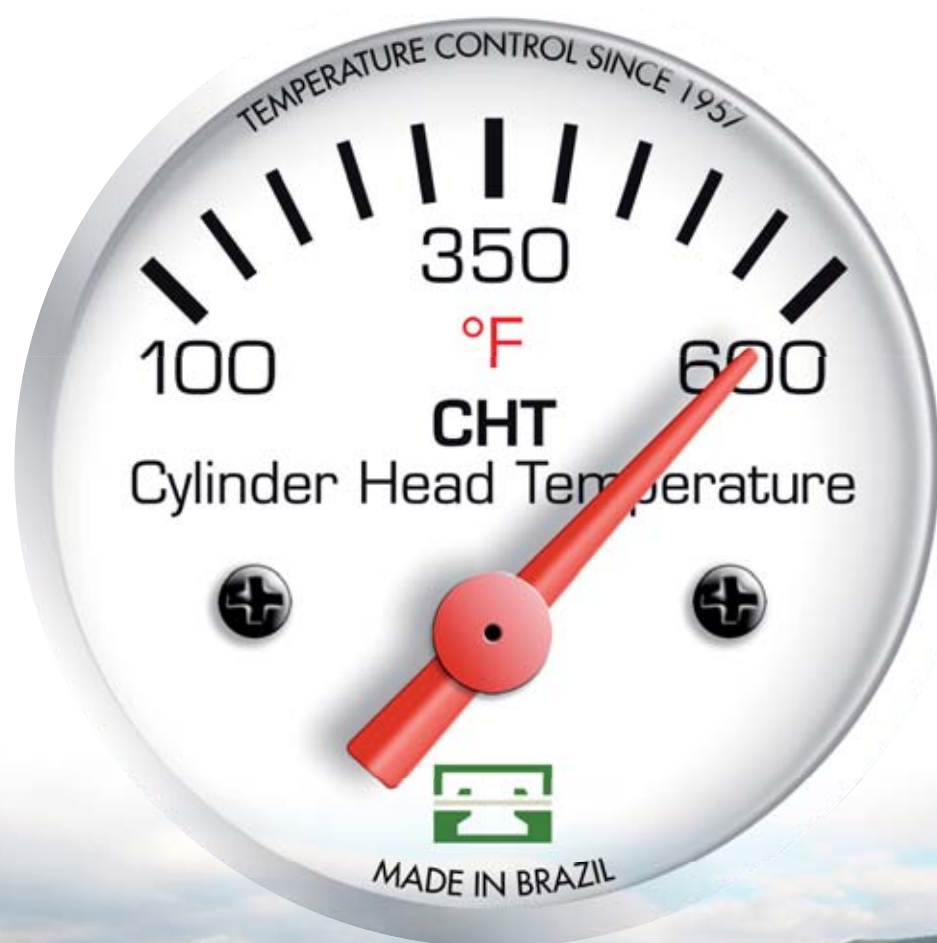
1836539C91
NAVISTAR



PRETO BLACK

CHT

CYLINDER HEAD TEMPERATURE SENSOR



MTE 4181

98FF-6G004-AC
FORD



M12X1,75

15 mm

MTE 4213

XL3Z-6G004-AA
FORD
MERCURY



M10X1,5

19 mm

MTE 4214

8L3Z-6G004-A
F65F-6G004-AB
F65F-9G004-AB
F65Z-6G004-AB
F65Z-9G004-AB
FORD



M12X1,75

19 mm

MTE 4215

3L7Z-6G004-BA
9L8Z-6G004-C
FORD
9L8Z-6G004-C
LINCOLN
9L8A-6G004-CB
MERCURY



M10X1,5

19 mm

MTE 4216

XW4Z-6G004-AA
ZW4F-6G004-AA
ZW4Z-6G004-AA
XR8F-6G004-AA
LINCOLN



M12X1,5

19 mm

MTE 4222

7L5Z-6G004-A
8S4Z-6G004-A
1S7F-6G004-AA
1S7F-6G004-AB
FORD
7L5Z-6G004-A
LINCOLN
8S4Z-6G004-A
MERCURY



M10X1,5

19 mm

MTE 4229

3W4Z-6G004-AB
FORD
LINCOLN



M12X1,5

19 mm

MTE 4234

YS4Z-6G004-AA YS4Z-6G004-AB
YS4Z-6G004-CC 988F-6G004-DB
FORD
YF09-18-840
MAZDA



M10X1,5

15 mm



START OF OPENING TEMPERATURE FOR THERMOSTATS



THERMO-SWITCH FOR ELECTRIC FAN



SENSOR FOR COLD START ALCOHOL ENGINE



TRUCK



AIR CONDITIONING



SENSOR FOR HOT START



COOLANT TEMPERATURE SENSOR



HERMO SWITCH FOR WARNING LAMP



HEXAGONAL



EMISSION CONTROL



THERMO-SWITCH FOR WARNING ALARM



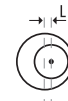
THREAD



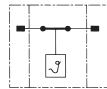
MOTORCYCLE



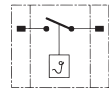
TEMPERATURE SENDER FOR INDICATION INSTRUMENTS COOLANT



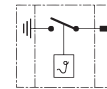
DECENTRALIZED VALVE



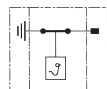
NORMALY CLOSED CIRCUIT



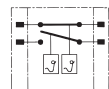
NORMALY OPEN CIRCUIT



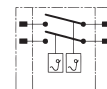
NORMALY OPEN CIRCUIT FOR THERMOSWITCH WITH 1 TERMINAL



NORMALY CLOSED CIRCUIT FOR THERMOSWITCH WITH 1 TERMINAL



NORMALY CLOSED/OPEN CIRCUIT



NORMALY OPEN/OPEN CIRCUIT



01 THERMISTOR 01 TERMINAL



01 THERMISTOR 02 TERMINALS



02 THERMISTORS 02 TERMINALS



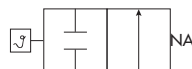
02 THERMISTORS 03 TERMINALS



02 THERMISTORS 03 TERMINALS



02 THERMISTORS 04 TERMINALS



NORMALY OPEN CIRCUIT



NORMALY CLOSED CIRCUIT

MTE #1 K-20001



GM

MTE #2 K-20002



FORD

MTE #3 K-20003



FORD

MTE #4 K-20004



FIAT

MTE #5 K-20005



VOLKSWAGEN

MTE #6 K-20006



FIAT

MTE #7 K-20007



FIAT

MTE #8 K-20008



FIAT

KIT TEMPERATURE

MTE #9 K-20009



FIAT

MTE #10 K-20010



FIAT

MTE #11 K-20011



FIAT

MTE #12 K-20012



VOLKSWAGEN

MTE #13 K-20013



VOLKSWAGEN

MTE #14 K-20014



VOLKSWAGEN

MTE #15 K-20015



VOLKSWAGEN

MTE #16 K-20016



VOLKSWAGEN

KIT TEMPERATURE

MTE #17 K-20017



FIAT

MTE #18 K-20018



FORD

MTE #19 K-20019



CITROËN
PEUGEOT

MTE #20 K-20020



FIAT
GM

MTE #21 K-20021



FIAT

MTE #22 K-20022



FIAT

MTE #23 K-20023



FIAT

MTE #24 K-20024



FIAT

MTE #25 K-20025



FIAT

MTE #26 K-20026



FIAT

MTE #27 K-20027



FIAT

MTE #28 K-20028



FORD

MTE #29 K-20029



FORD

MTE #32 K-20032



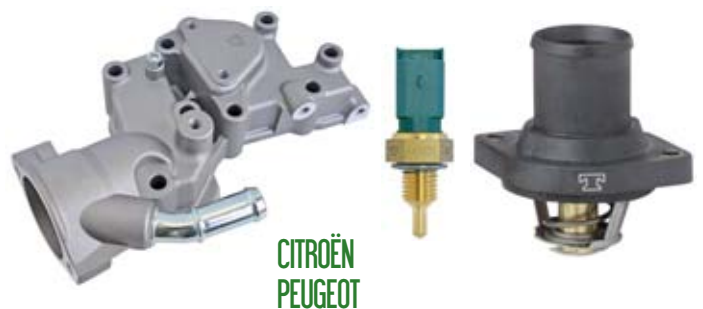
VOLKSWAGEN

MTE #33 K-20033



VOLKSWAGEN

MTE #34 K-20034



CITROËN
PEUGEOT

EMBALAGENS
PACKAGES





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stevan.manzan@mte-thomson.com.br
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CatE-MTE
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TEMPERATURE