



The KE Series are for use in high temperature applications where the process temperatures may reach 538°C (1000°F) such as high temperature engineered polymers. The K Series utilizes standard melt pressure principles and construction, but uses a near incompressible NaK (Sodium Potassium) for pressure transmission. The K Series strain sensing technology is bonded foil strain gage.

#### MAIN FEATURES

- Pressure ranges from:
  - 0-35 to 0-1000 bar / 0-500 to 0-15000 psi
- Accuracy: < ±0.25% FSO (H); < ±0.5% FSO (M)
- Hydraulic transmission system for pressure signal guarantees stability at working temperature (NaK). Liquid conforming to RoHS Directive. NaK is defined as a safe substance (GRAS)
- Quantity of NaK contained per model: KE0 series (30mm<sup>3</sup>) [0.00183 in<sup>3</sup>], KE1, KE2, KE3 (40mm<sup>3</sup>) [0.00244 in<sup>3</sup>]
- 1/2-20UNF, M18x1.5 standard threads; other types available on request
- Autozero function on board / external option
- Stem drift Autocompensation function (SP version)
- Inconel 718 diaphragm with GTP coating for temperatures up to 538°C (1000°F)
- 15-5 PH diaphragm with GTP coating for temperatures up to 400°C (750°F)
- Hastelloy C276 diaphragm for temperatures up to 300°C (570°F)
- 17-7 PH corrugated diaphragm with GTP coating for ranges below 100bar-1500psi

*GTP (advanced protection)  
Coating with high resistance against corrosion, abrasion and high temperature*

#### AUTOZERO FUNCTION

All signal variations in the absence of pressure can be eliminated by using the Autozero function. This function is activated by closing a magnetic contact located on the transmitter housing. The procedure is permitted only with pressure at zero.

#### AUTO-COMPENSATED INFLUENCE OF MELT TEMPERATURE

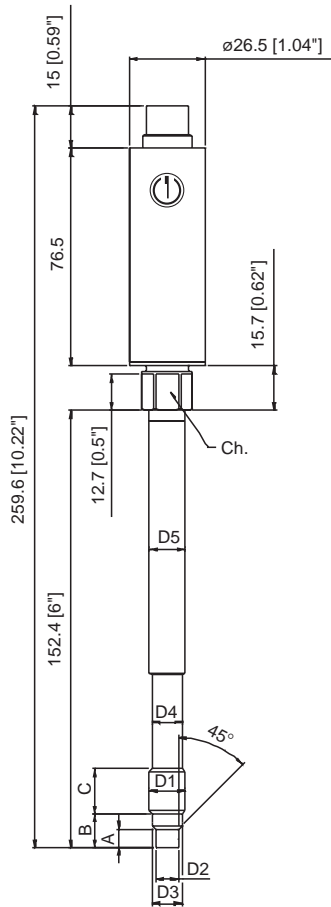
Thanks to internal self-compensation, the KSP series transmitter cancels the effect of pressure signal variation caused by variation of Melt temperature. This reduces at the minimum the read error caused by heating of the filling fluid (typical of all sensors built with "filled" technology). The drift values declared in the version with Autocompensation are valid for media temperatures up to 500°C.

#### TECHNICAL SPECIFICATIONS

Accuracy (1)	<b>H</b> <±0.25%FSO (100...1000 bar) <b>M</b> <±0.5%FSO (35...1000 bar)
Resolution	Infinite
Measurement range	0..35 to 0..1000bar 0..500 to 0..15000psi
Maximum overpressure (without degrading performances)	2 x FS 1.5 x FS over 1000bar/15000psi
Measurement principle	Extensimetric
Power supply	10...30Vdc
Maximum current absorption	32mA
Insulation resistance (at 50Vdc)	>1000 MOhm
Output signal Full Scale (FSO)	20mA
Zero balance (tolerance ± 0.25% FSO)	4mA
Zero signals adjustment (tolerance ± 0.25% FSO)	"Autozero" function
Span adjustment within ± 5% FSO	See Melt Manual
Maximum allowed load	See chart
Electronic response time (10...90% FSO)	~ 1ms
Output noise (RMS 10-400Hz)	< 0.025% FSO
Calibration signal	80% FSO
Output short circuit and reverse polarity protection	YES
Voltage spike protection	> 2KV burst test, according to EN61000-4-4
CE conformity (89/336 standard)	EMC Emissions EN61000-6-3 EMC Immunity EN61000-6-2 (10V/m)
Compensated temperature range	0...+85°C
Operating temperature range	-30...+105°C
Storage temperature range	-40...+125°C
Thermal drift in compensated range: Zero / Calibration / Sensibility	< 0.02% FSO/°C
Diaphragm maximum temperature	538°C/1000°F
Zero drift (zero)	< 3,5bar/100°C / < 212 psi/100°F
Zero drift temperature for Autocompensated version (SP) within the temperature range 20°C-500°C inclusive the drift temperature of the housing	< 0.005 bar/°C 100 ≤ p < 500 bar 0.0022 %FS/°C p ≥ 500 bar
Thermocouple (model KE2)	STD: type "J" (isolated junction)
Protection degree (with 6-pole female connector)	IP65

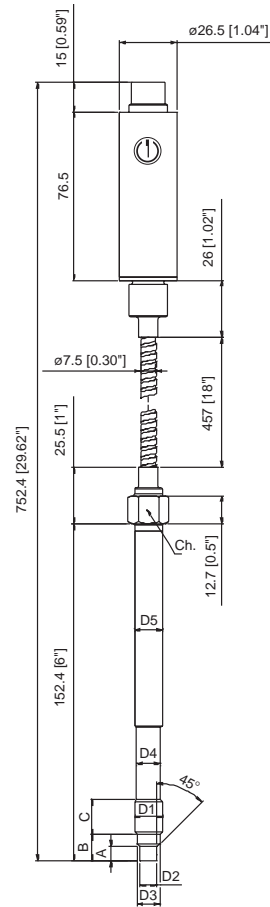
FSO = Full Scale Output  
(1) BFSL method (Best Fit Straight Line): includes combined effects of Non-Linearity, Hysteresis and Repeatability.

# MECHANICAL DIMENSIONS



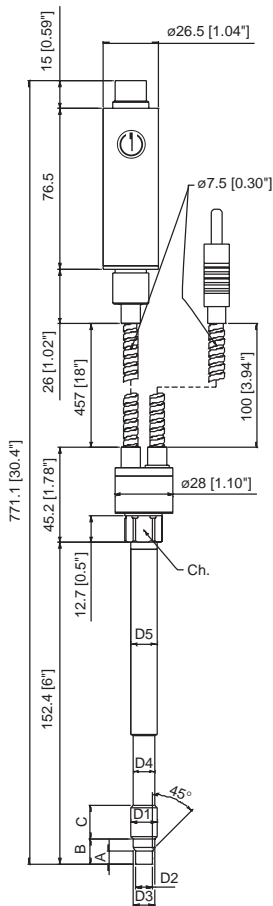
**KE0**

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



**KE1**

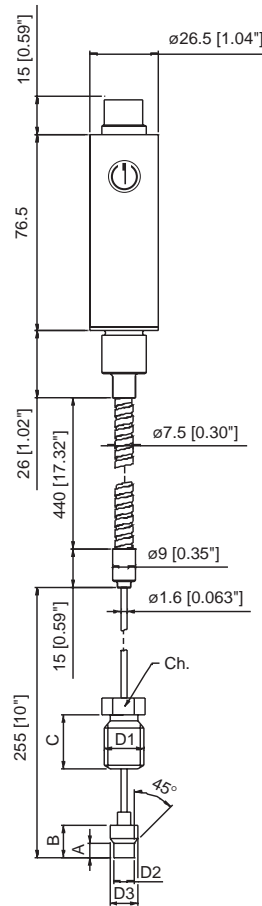
D1	<b>M18x1.5</b>
D2	ø10 -0.05 [ø0.394" -0.002]
D3	ø16 -0.08 [ø0.63" -0.003]
D4	ø16 -0.4 [ø0.63" -0.016]
D5	ø18 [ø0.71"]
A	6 -0.26 [0.24" -0.01]
B	14.8 -0.4 [0.58" -0.016]
C	19 [0.75"]
Ch	19 [3/4"]



**KE2**

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

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

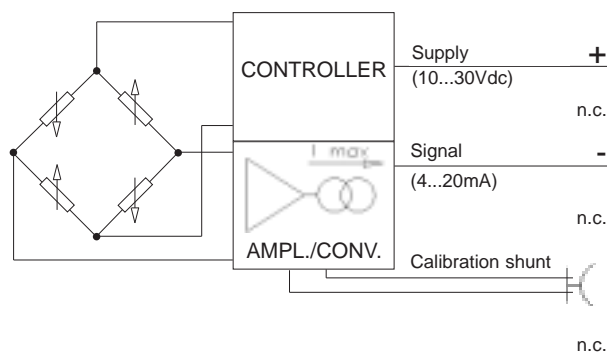


**KE3**

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

## ELECTRICAL CONNECTIONS

### CURRENT OUTPUT (4...20mA, 2 wires)



### MAGNETIC AUTOZERO

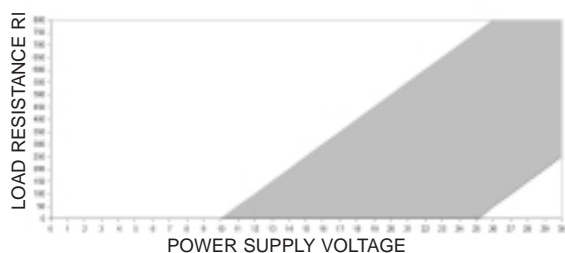
6-pin	8-pin
A	B
C	A
B	D
D	C
E - F	E - F
	G - H

### EXTERNAL AUTOZERO

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

Connect the cable sheathing to the side of the instrument

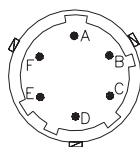
## LOAD DIAGRAM



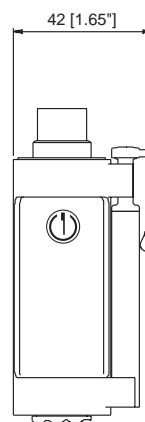
The diagram shows the optimum ratio between load and power supply for transmitters with 4...20mA output. For correct function, use a combination of load resistance and voltage that falls within the shaded area.

## AUTOZERO FUNCTION

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



8-pin connector  
PC02E-12-8P Bendix



The Autozero function is activated through a magnetic contact (external magnet supplied with the sensor). See the manual for a complete Autozero function explanation.

## ACCESSORIES

### Connectors

6-pin female connector (IP65 protection degree)  
8-pin female connector

### Extension cables

6-pin connector with 8m (25ft) cable  
6-pin connector with 15m (50ft) cable  
6-pin connector with 25m (75ft) cable  
6-pin connector with 30m (100ft) cable  
8-pin connector with 8m (25ft) cable  
8-pin connector with 15m (50ft) cable  
8-pin connector with 25m (75ft) cable  
8-pin connector with 30m (100ft) cable  
Other lengths

### Accessories

Mounting bracket  
Dummy plug for 1/2-20UNF  
Dummy plug for M18x1.5  
Drill kit for 1/2-20UNF  
Drill kit for M18x1.5  
Cleaning kit for 1/2-20UNF  
Cleaning kit for M18x1.5  
Fixing pen clip  
Autozero pen

**Thermocouple for KE2 model**  
Type "J" (153mm - 6" rigid stem)

**CON300**  
**CON307**

**C08WLS**  
**C15WLS**  
**C25WLS**  
**C30WLS**  
**E08WLS**  
**E15WLS**  
**E25WLS**  
**E30WLS**  
on request

**SF18**  
**SC12**  
**SC18**  
**KF12**  
**KF18**  
**CT12**  
**CT18**  
**PKIT309**  
**PKIT312**

**TTER601**

### Cable color code

Conn.	Wire
A	Red
B	Black
C	White
D	Green
E	Blue
F	Orange

# ORDER CODE

**K** - - - - - - - - - - - - - - - **000**

Autocompensation	<b>SP</b>
Standard	-

<b>OUTPUT SIGNAL</b>	
4 .. 20mA	<b>E</b>

<b>VERSION</b>	
Rigid stem	<b>0</b>
Rigid + flexible stem	<b>1</b>
With thermocouple	<b>2</b>
Exposed capillary	<b>3</b>

<b>CONNECTOR</b>	
<b>Standard</b>	
6-pin	<b>6</b>
8-pin	<b>8</b>

<b>ACCURACY CLASS</b>	
<b>0.25% FSO</b> (ranges ≥ 100 bar/1500 psi)	<b>H</b>
<b>0.5% FSO</b>	<b>M</b>

<b>RANGE</b>			
bar		psi	
<b>35</b>	<b>B35U</b>	<b>500</b>	<b>P05C</b>
<b>50</b>	<b>B05D</b>	<b>750</b>	<b>P75D</b>
<b>70</b>	<b>B07D</b>	<b>1000</b>	<b>P01M</b>
<b>100</b>	<b>B01C</b>	<b>1500</b>	<b>P15C</b>
<b>200</b>	<b>B02C</b>	<b>3000</b>	<b>P03M</b>
<b>350</b>	<b>B35D</b>	<b>5000</b>	<b>P05M</b>
<b>500</b>	<b>B05C</b>	<b>7500</b>	<b>P75C</b>
<b>700</b>	<b>B07C</b>	<b>10000</b>	<b>P10M</b>
<b>1000</b>	<b>B01M</b>	<b>15000</b>	<b>P15M</b>

000= Standard version  
Special or customized versions available on request

<b>E</b>	External autozero
-	Magnetic autozero

<b>CONTACT DIAPHRAGM</b>	
<b>I</b>	INCONEL 718 (538°C*)
<b>S</b>	15-5 PH (400°C*)
<b>H</b>	HASTELLOY C276 (300°C*)

\* max temperature

**FLEXIBLE STEM LENGTH**  
(mm / inches) (\*)

<b>Standard (KE0)</b>	
<b>0</b>	none

<b>Standard (KE1, KE2)</b>	
<b>D</b>	457mm 18"
<b>E</b>	610mm 24"
<b>F</b>	760mm 30"

<b>Standard (KE3)</b>	
<b>L</b>	711mm 28"

<b>Available on request</b>	
<b>A</b>	76mm 3"
<b>B</b>	152mm 6"
<b>C</b>	300mm 12"

**RIGID STEM LENGTH**  
(mm / inches) (\*)

<b>Standard (KE0, KE1, KE2)</b>	
<b>4</b>	153mm 6"
<b>5</b>	318mm 12.5"

<b>Standard (KE3)</b>	
<b>0</b>	none

<b>Available on request</b>	
<b>1</b>	38mm 1.5"
<b>2</b>	50mm 2"
<b>3</b>	76mm 3"
<b>6</b>	350mm 14"
<b>7</b>	400mm 16"
<b>8</b>	456mm 18"

(\*) max combined rigid/flexible stem length is 1000mm - 39"

<b>THREAD</b>	
<b>Standard</b>	
<b>1</b>	1/2 - 20 UNF
<b>4</b>	M18 x 1.5

## Examples

### **KE2-6-M-B07C-1-4-D-I-000**

Melt pressure transducer with type "J" thermocouple, 4...20mA output, 6-pin connector, 1/2-20UNF thread, 00 bar pressure range, 0.5% accuracy class, 153 mm (6") rigid stem, 457mm (18") flexible stem, Inconel 718 diaphragm.

### **KSPE0-6-M-P03M-1-4-0-I-000**

Melt pressure transducer autocompensated version, rigid stem, 4...20mA output, 6-pin connector, 1/2-20UNF thread, 3000 psi pressure range, 0.5% accuracy class, 153 mm (6") rigid stem, Inconel 718 diaphragm.

GEFRAN reserves the right to make any kind of design or functional modification at any moment without prior notice

**GEFRAN spa**  
via Sebina, 74  
25050 PROVAGLIO D'ISEO (BS) - ITALIA  
tel. 0309888.1 - fax. 0309839063  
Internet: <http://www.gefran.com>  
[www.gefranonline.com](http://www.gefranonline.com)

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