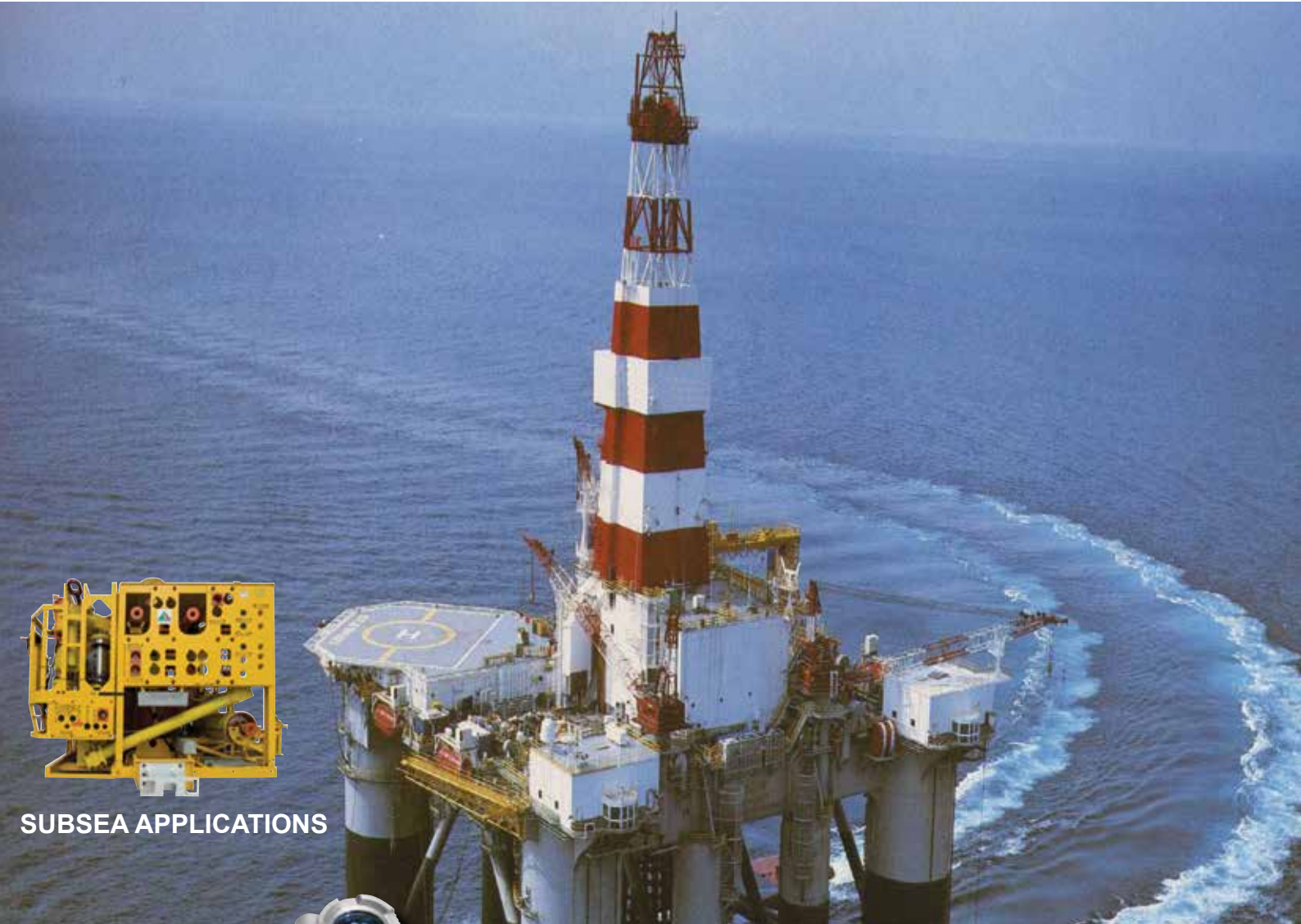




**Differential Pressure (flowmeter) Transmitter**  
**20 000 Psi Line Pressure**



SUBSEA APPLICATIONS



**FCX-AII** Series





# Solutions for SUPER High Line Pressure for Flow and Differential Pressure applications :

Based on more than 15 years experience of supplying Differential Pressure transmitters for Oil & Gas for line pressure of **more than 6000 Psi**, Fuji Electric France, is proud to announce the release of its latest Differential Pressure for **20 000 Psi** (1379 bar) line pressure as a direct response to our customer's requirements in **super** high pressure applications that are traditionally found in Oil & Gas flow measurement.

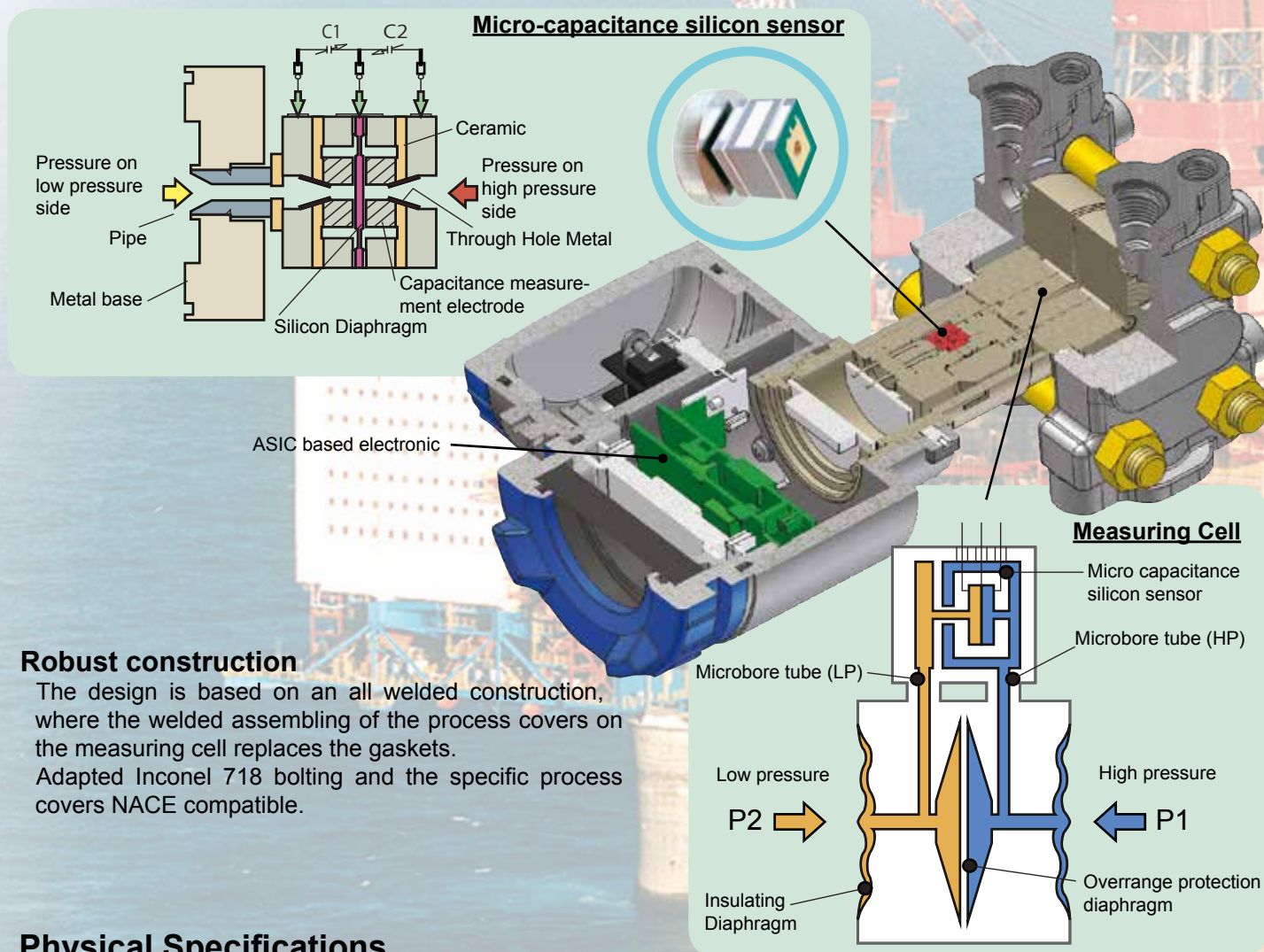
The experience and technical capability that we built into the new transmitter enables it to measure differential pressures of 130mbar at static pressures of up to 20 000 Psi (1379 bar), typically found in **top side and subsea applications**.

## Measuring principle :

The transmitter utilizes a unique micromachined capacitive silicon sensor with state of the art microprocessor technology to provide exceptional performance and functionality. The silicon sensor is assembled **floating in measuring cell neck**, which allows extreme high line pressures and improves the static pressure characteristics.

Pressure transfer oil envelops the silicon sensor >>> **FLOATING SILICON SENSOR**.

Static pressure (line pressure) influence is strongly minimized thanks to floating sensor design.



## Robust construction

The design is based on an all welded construction, where the welded assembling of the process covers on the measuring cell replaces the gaskets.

Adapted Inconel 718 bolting and the specific process covers NACE compatible.

## Physical Specifications

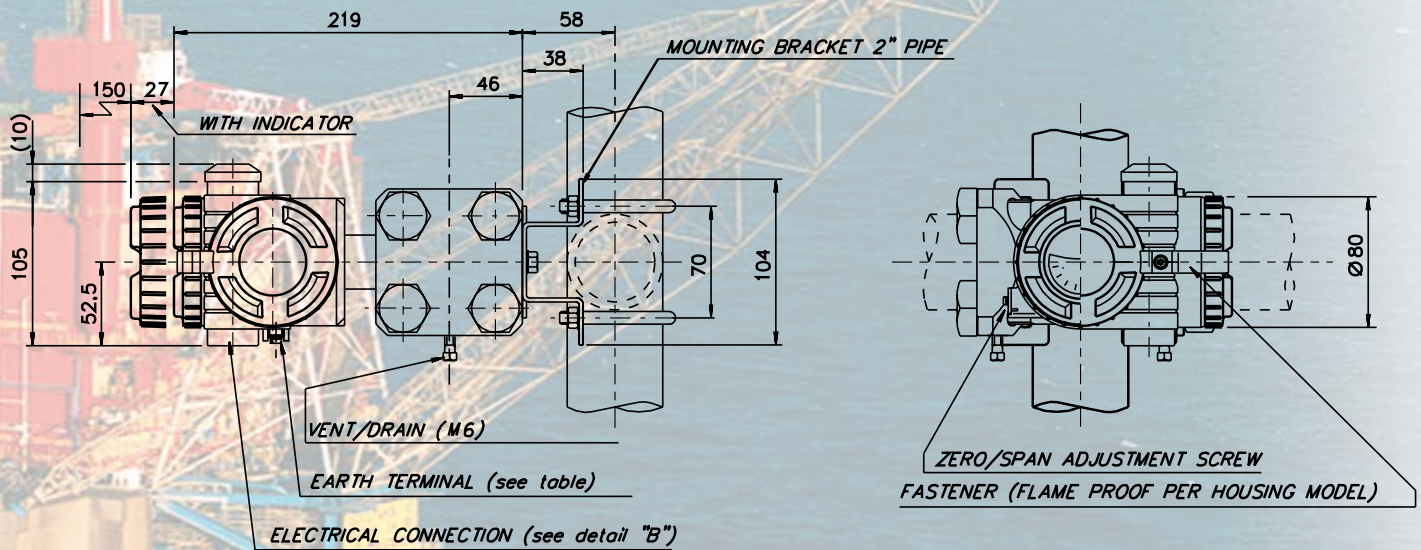
<b>Process connections</b>	Autoclave 9/16-18 UNF - 2B SF 375CX20, 9/16-18 UNF - 2B F 250C or 13/16-16UNF-2B SF 562CX20, others upon request
<b>Wetted parts materials</b> <i>*Nota : see table (code symbols)</i>	Measuring cell and body / Diaphragm Hastelloy C 276, Measuring cell and body Hastelloy C 276 / Duplex
<b>Non wetted parts</b>	Electronics housing : - Low copper die-cast aluminum alloy (std), finished with epoxy / polyurethane double coating - SS 316 Bolts / nuts : Inconel 718
<b>Ambient temperature</b>	-5 to 85°C
<b>Process temperature</b>	-5 to 120 °C
<b>Remote seal designs</b>	Available according customer specifications



# Performance Specifications

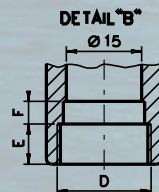
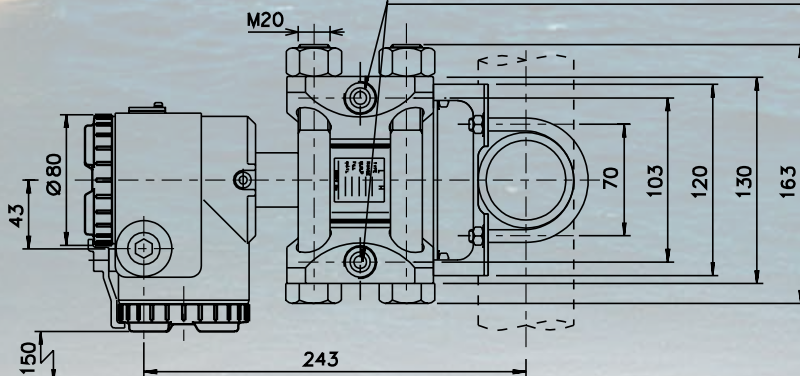
<b>Accuracy rating :</b> (including linearity, hysteresis and repeatability)	For spans greater than 1/10 of URL : $\pm 0.1\%$ of span
<b>Stability</b>	$\pm 0.1\%$ of upper range limit (URL) for 3 years
<b>Ambient temperature effect</b>	Zero : $\pm (0.1 + 0.025 \times \text{URL} / \text{span})$ in % of span / 28°C Total : $\pm (0.125 + 0.025 \times \text{URL} / \text{span})$ in % of span / 28°C
<b>Static pressure effect</b>	Zero : $\pm 0.1\%$ of URL / 10 MPa Span : 0 to $-0.3\%$ of span / 10 MPa
<b>Supply voltage effect</b>	Less than 0.05% of calibrated span per 10V
<b>RFI effect</b>	Less than 0.2% of URL for the frequencies of 20 to 1000MHz and field strength 30 V/m when electronics covers in place. (Classification : 2-abc : 0.2% span per SAMA PMC 33.1)
<b>Mounting position effect</b>	Zero shift : Less than 0.12kPa {1.2m bar} for a 10° tilt in any plane. No effect on span. This error can be corrected by adjusting Zero after installation.
<b>Vibration effect</b>	$< \pm 0.25\%$ of spans for spans greater than 1/10 of URL. Frequency 10 to 150Hz, acceleration 39.2m/sec <sup>2</sup>
<b>Dielectric strength</b>	500V AC, 50/60Hz 1 min, between circuit and earth.
<b>Insulation resistance</b>	More than 100MΩ at 500V DC
<b>Turn-on time</b>	4 seconds

## Outline dimensions



### PROCESS CONNECTIONS

- 13/16-16 UNF - 2B SF562 X20C - for 9/16 MP AUTOCLAVE CONNECTIONS
- 9/16-18 UNF - 2B F 250C - for 1/4 HP AUTOCLAVE CONNECTIONS
- 9/16-18 UNF - 2B SF 375 CX20 - for 3/8 MP AUTOCLAVE CONNECTIONS



TABLE

CONDUIT CONN.			EARTH TERMINAL
D	E	F	
1/2-14NPT	16	5	N"8 - 32UNC
M20x1.5	16	5	M4

# Code Symbols

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	DESCRIPTION																												
F	K	C					4	-		C			-	W	Y	<b>Smart, 4-20 mA dc + Fuji/Hart™ digital signal Bus communication (RS 485 Modbus)</b>																											
F	D	C														<table border="1"> <tr> <td>Process connection</td><td>Electrical connection</td> </tr> <tr> <td>9/16-18 UNF-2B SF 375 CX20</td><td>M 20 x 1,5</td> </tr> <tr> <td>9/16-18 UNF-2B SF 375 CX20</td><td>1/2"-14 NPT</td> </tr> <tr> <td>9/16-18 UNF-2B F 250C</td><td>M 20 x 1,5</td> </tr> <tr> <td>9/16-18 UNF-2B F 250C</td><td>1/2"-14 NPT</td> </tr> <tr> <td>13/16-16 UNF-2B SF 562 CX20C</td><td>M 20 x 1,5</td> </tr> <tr> <td>13/16-16 UNF-2B SF 562 CX20C</td><td>1/2"-14 NPT</td> </tr> </table>	Process connection	Electrical connection	9/16-18 UNF-2B SF 375 CX20	M 20 x 1,5	9/16-18 UNF-2B SF 375 CX20	1/2"-14 NPT	9/16-18 UNF-2B F 250C	M 20 x 1,5	9/16-18 UNF-2B F 250C	1/2"-14 NPT	13/16-16 UNF-2B SF 562 CX20C	M 20 x 1,5	13/16-16 UNF-2B SF 562 CX20C	1/2"-14 NPT													
Process connection	Electrical connection																																										
9/16-18 UNF-2B SF 375 CX20	M 20 x 1,5																																										
9/16-18 UNF-2B SF 375 CX20	1/2"-14 NPT																																										
9/16-18 UNF-2B F 250C	M 20 x 1,5																																										
9/16-18 UNF-2B F 250C	1/2"-14 NPT																																										
13/16-16 UNF-2B SF 562 CX20C	M 20 x 1,5																																										
13/16-16 UNF-2B SF 562 CX20C	1/2"-14 NPT																																										
																<table border="1"> <tr> <td><b>Max working pressure (static pressure)</b></td><td><b>Test pressure</b></td> </tr> <tr> <td>1379 bar (20 000 Psi) - M20 bolting</td><td>2069 bar (30 000 Psi)</td> </tr> </table>	<b>Max working pressure (static pressure)</b>	<b>Test pressure</b>	1379 bar (20 000 Psi) - M20 bolting	2069 bar (30 000 Psi)																							
<b>Max working pressure (static pressure)</b>	<b>Test pressure</b>																																										
1379 bar (20 000 Psi) - M20 bolting	2069 bar (30 000 Psi)																																										
																<table border="1"> <tr> <td colspan="2"><b>Range (mbar)</b></td> </tr> <tr> <td>Min</td><td>Max</td> </tr> <tr> <td>0 - 130</td><td>0 - 1300</td> </tr> <tr> <td>0 - 500</td><td>0 - 5000</td> </tr> <tr> <td>0 - 3000</td><td>0 - 30000</td> </tr> </table>	<b>Range (mbar)</b>		Min	Max	0 - 130	0 - 1300	0 - 500	0 - 5000	0 - 3000	0 - 30000																	
<b>Range (mbar)</b>																																											
Min	Max																																										
0 - 130	0 - 1300																																										
0 - 500	0 - 5000																																										
0 - 3000	0 - 30000																																										
																<table border="1"> <tr> <td colspan="3"><b>Wetted parts material</b></td> </tr> <tr> <td>Cell Body</td><td>Seal diaphragm</td><td>Process cover</td> </tr> <tr> <td>Hast C276</td><td>Hast C276</td><td>Hast C276</td> </tr> <tr> <td>Hast C276</td><td>Hast C276</td><td>Duplex</td> </tr> </table>	<b>Wetted parts material</b>			Cell Body	Seal diaphragm	Process cover	Hast C276	Hast C276	Hast C276	Hast C276	Hast C276	Duplex															
<b>Wetted parts material</b>																																											
Cell Body	Seal diaphragm	Process cover																																									
Hast C276	Hast C276	Hast C276																																									
Hast C276	Hast C276	Duplex																																									
																<table border="1"> <tr> <td><b>Indicator</b></td><td><b>Arrester</b></td><td><b>Communication type</b></td> </tr> <tr> <td>No</td><td>No</td><td>4/20 mA - Hart™</td> </tr> <tr> <td>LCD, 0-100%</td><td>No</td><td>4/20 mA - Hart™</td> </tr> <tr> <td>LCD, Custom scale</td><td>No</td><td>4/20 mA - Hart™</td> </tr> <tr> <td>No</td><td>Yes</td><td>4/20 mA - Hart™</td> </tr> <tr> <td>LCD, 0-100%</td><td>Yes</td><td>4/20 mA - Hart™</td> </tr> <tr> <td>LCD, Custom scale</td><td>Yes</td><td>4/20 mA - Hart™</td> </tr> <tr> <td>No</td><td>Yes</td><td>Modbus RS 485 *Note1</td> </tr> </table>	<b>Indicator</b>	<b>Arrester</b>	<b>Communication type</b>	No	No	4/20 mA - Hart™	LCD, 0-100%	No	4/20 mA - Hart™	LCD, Custom scale	No	4/20 mA - Hart™	No	Yes	4/20 mA - Hart™	LCD, 0-100%	Yes	4/20 mA - Hart™	LCD, Custom scale	Yes	4/20 mA - Hart™	No	Yes	Modbus RS 485 *Note1			
<b>Indicator</b>	<b>Arrester</b>	<b>Communication type</b>																																									
No	No	4/20 mA - Hart™																																									
LCD, 0-100%	No	4/20 mA - Hart™																																									
LCD, Custom scale	No	4/20 mA - Hart™																																									
No	Yes	4/20 mA - Hart™																																									
LCD, 0-100%	Yes	4/20 mA - Hart™																																									
LCD, Custom scale	Yes	4/20 mA - Hart™																																									
No	Yes	Modbus RS 485 *Note1																																									
																<table border="1"> <tr> <td colspan="3"><b>Approvals for hazardous locations (consult FUJI for availability)</b></td> </tr> <tr> <td>A</td><td></td><td>None (standard)</td> </tr> <tr> <td>X</td><td></td><td>Flameproof housing ATEX <math>\text{Ex II 2 GD} - \text{EEx d IIC T5/T6}</math></td> </tr> <tr> <td>K</td><td></td><td>Intrinsic Safety ATEX <math>\text{Ex II 1 GD} - \text{EEx ia IIC T4/T5}</math></td> </tr> <tr> <td>D</td><td></td><td>FM - Flameproof housing Class I, Division 1, Group B,C,D Dust ignitionproof Class II/III, Division 1, Group E,F,G - (elec. conn. code "T" only) CSA - Flameproof housing Class I, Group C,D - Class II, Group E,F,G Class III - (electrical connection code "T" only)</td> </tr> <tr> <td>E</td><td></td><td>FM - Intrinsic safety Class I, II, III, Division 1, Group A,B,C,D,E,F,G Nonincentive Class I,II,III, Division 2, Group A,B,C,D,F,G CSA - Intrinsic safety &amp; Nonincentive Class I, Group A,B,C,D - Class II, Group E,F,G Class III - Temp code T4 for all classes (electrical connection code "T" only)</td> </tr> <tr> <td>H</td><td></td><td>Combined ATEX <math>\text{Ex II 2 GD} - \text{EEx d IIC T5/T6}</math> &amp; ATEX <math>\text{Ex II 1 GD} - \text{EEx ia IIC T4/T5}</math></td> </tr> <tr> <td>J</td><td></td><td></td> </tr> <tr> <td>M</td><td></td><td></td> </tr> </table>	<b>Approvals for hazardous locations (consult FUJI for availability)</b>			A		None (standard)	X		Flameproof housing ATEX $\text{Ex II 2 GD} - \text{EEx d IIC T5/T6}$	K		Intrinsic Safety ATEX $\text{Ex II 1 GD} - \text{EEx ia IIC T4/T5}$	D		FM - Flameproof housing Class I, Division 1, Group B,C,D Dust ignitionproof Class II/III, Division 1, Group E,F,G - (elec. conn. code "T" only) CSA - Flameproof housing Class I, Group C,D - Class II, Group E,F,G Class III - (electrical connection code "T" only)	E		FM - Intrinsic safety Class I, II, III, Division 1, Group A,B,C,D,E,F,G Nonincentive Class I,II,III, Division 2, Group A,B,C,D,F,G CSA - Intrinsic safety & Nonincentive Class I, Group A,B,C,D - Class II, Group E,F,G Class III - Temp code T4 for all classes (electrical connection code "T" only)	H		Combined ATEX $\text{Ex II 2 GD} - \text{EEx d IIC T5/T6}$ & ATEX $\text{Ex II 1 GD} - \text{EEx ia IIC T4/T5}$	J			M		
<b>Approvals for hazardous locations (consult FUJI for availability)</b>																																											
A		None (standard)																																									
X		Flameproof housing ATEX $\text{Ex II 2 GD} - \text{EEx d IIC T5/T6}$																																									
K		Intrinsic Safety ATEX $\text{Ex II 1 GD} - \text{EEx ia IIC T4/T5}$																																									
D		FM - Flameproof housing Class I, Division 1, Group B,C,D Dust ignitionproof Class II/III, Division 1, Group E,F,G - (elec. conn. code "T" only) CSA - Flameproof housing Class I, Group C,D - Class II, Group E,F,G Class III - (electrical connection code "T" only)																																									
E		FM - Intrinsic safety Class I, II, III, Division 1, Group A,B,C,D,E,F,G Nonincentive Class I,II,III, Division 2, Group A,B,C,D,F,G CSA - Intrinsic safety & Nonincentive Class I, Group A,B,C,D - Class II, Group E,F,G Class III - Temp code T4 for all classes (electrical connection code "T" only)																																									
H		Combined ATEX $\text{Ex II 2 GD} - \text{EEx d IIC T5/T6}$ & ATEX $\text{Ex II 1 GD} - \text{EEx ia IIC T4/T5}$																																									
J																																											
M																																											
																<table border="1"> <tr> <td colspan="2"><b>Mounting bracket</b></td> </tr> <tr> <td><b>Tag plate</b></td><td><b>Electronics housing</b></td> </tr> <tr> <td>Without</td><td>Aluminium</td> </tr> <tr> <td>SS 316L</td><td>Aluminium</td> </tr> <tr> <td>Without</td><td>SS 316</td> </tr> <tr> <td>SS 316L</td><td>SS 316</td> </tr> </table>	<b>Mounting bracket</b>		<b>Tag plate</b>	<b>Electronics housing</b>	Without	Aluminium	SS 316L	Aluminium	Without	SS 316	SS 316L	SS 316															
<b>Mounting bracket</b>																																											
<b>Tag plate</b>	<b>Electronics housing</b>																																										
Without	Aluminium																																										
SS 316L	Aluminium																																										
Without	SS 316																																										
SS 316L	SS 316																																										
																<table border="1"> <tr> <td colspan="2"><b>Fill fluid</b></td> </tr> <tr> <td>M</td><td>Specific oil fill for cell</td> </tr> <tr> <td>P</td><td>Specific oil fill for cell. Wetted parts and bolting in conformity with NACE</td> </tr> </table>	<b>Fill fluid</b>		M	Specific oil fill for cell	P	Specific oil fill for cell. Wetted parts and bolting in conformity with NACE																					
<b>Fill fluid</b>																																											
M	Specific oil fill for cell																																										
P	Specific oil fill for cell. Wetted parts and bolting in conformity with NACE																																										
																Welded process cover design																											
																Y Process cover bolts/nuts in Inconel 718																											

\* Note 1 : Only available with digit 10 codes A & X

## По вопросам продаж и поддержки обращайтесь:

Архангельск (8182)63-90-72  
Астана +7(7172)727-132  
Белгород (4722)40-23-64  
Брянск (4832)59-03-52  
Владивосток (423)249-28-31  
Волгоград (844)278-03-48  
Вологда (8172)26-41-59  
Воронеж (473)204-51-73  
Екатеринбург (343)384-55-89  
Иваново (4932)77-34-06  
Ижевск (3412)26-03-58  
Казань (843)206-01-48

Калининград (4012)72-03-81  
Калуга (4842)92-23-67  
Кемерово (3842)65-04-62  
Киров (8332)68-02-04  
Краснодар (861)203-40-90  
Красноярск (391)204-63-61  
Курск (4712)77-13-04  
Липецк (4742)52-20-81  
Магнитогорск (3519)55-03-13  
Москва (495)268-04-70  
Мурманск (8152)59-64-93  
Набережные Челны (8552)20-53-41

Нижний Новгород (831)429-08-12  
Новокузнецк (3843)20-46-81  
Новосибирск (383)227-86-73  
Орел (4862)44-53-42  
Оренбург (3532)37-68-04  
Пенза (8412)22-31-16  
Пермь (342)205-81-47  
Ростов-на-Дону (863)308-18-15  
Рязань (4912)46-61-64  
Самара (846)206-03-16  
Санкт-Петербург (812)309-46-40  
Саратов (845)249-38-78

Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13  
Тверь (4822)63-31-35  
Томск (3822)98-41-53  
Тула (4872)74-02-29  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Уфа (347)229-48-12  
Челябинск (351)202-03-61  
Череповец (8202)49-02-64  
Ярославль (4852)69-52-93

сайт: [www.fuji.nt-rt.ru](http://www.fuji.nt-rt.ru) || эл. почта: [fxu@nt-rt.ru](mailto:fxu@nt-rt.ru)