

# GEFRAN

## GSH-S (from 10000 up to 12500 mm)

HALL-EFFECT WIRE POSITION TRANSDUCER  
(CONTACTLESS)



**Contactless** linear sensor - HALL EFFECT technology - for almost infinite life of the primary element.

Excellent performance, high IP rating, shock and vibration resistance guarantee **sensor performance** in typical mobile hydraulics applications.

### TECHNICAL SPECIFICATIONS

#### Measurement Range (FS)

Strokes 10000 mm - 12500 mm

#### Supply voltage

+10...36 V DC (see ordering code for right supply voltage)

#### Output type

Analog output (voltage): 0.5...4.5 V; 0...10 V  
Analog output (current): 4...20 mA  
Digital output: CANopen

#### Electrical connections

M12 connector output, cable output

#### Linearity factory verification@ 25°C

< ±1% FS

#### Resolution

Analog output: 12 bit  
Digital output: 0.1 mm

#### Working temperature

-40°C...+85°C

#### Vibrations

20g between 10 Hz ... 2000 Hz IEC 60068-2-6

#### Shock

Pulse on 3 axes; 50g 11 ms IEC 60068-2-27

#### Electromagnetic compatibility

2014/30/EU Electromagnetic Compatibility (EMC)

#### IP Protection Level

IP67 with female homologated connector mounted, tightening torque 0.6Nm + low strength threadlocker (GSH-M/N/O/P M12 connector version)  
IP67 (GSH-F cable-PUR version)

#### Constructive material of transducer body and wire

Transducer: PBT  
Wire: AISI316 stainless steel, Ø0.85mm nylon coating

#### Typical speed

max 2m/s, typical 1m/s

#### Typical acceleration

1g

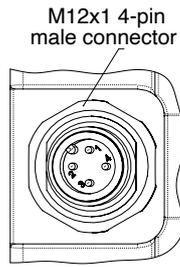
#### Weight

1.5 kg



# ELECTRICAL CONNECTIONS - M12 VERSION

**SINGLE VERSION** M-1-S  
**REDUNDANT VERSION** M-1-R M-2-R



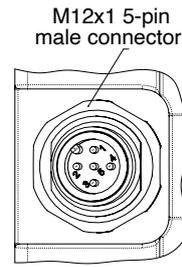
**ANALOG OUTPUT CONNECTIONS**

1. +SUPPLY
2. GROUND
3. OUTPUT
4. n.c.

**CAN CONNECTIONS**

1. +SUPPLY
2. GROUND
3. CAN-H
4. CAN-L

**SINGLE VERSION** N-1-S  
**REDUNDANT VERSION** N-1-R N-2-R



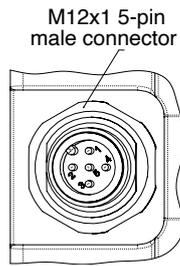
**ANALOG OUTPUT CONNECTIONS**

1. +SUPPLY
2. n.c.
3. GROUND
4. OUTPUT
5. n.c.

**CAN CONNECTIONS**

1. n.c.
2. +SUPPLY
3. GROUND
4. CAN-H
5. CAN-L

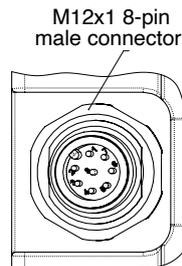
**SINGLE VERSION** P-1-S  
**REDUNDANT VERSION** P-1-R P-2-R  
**HALF REDUNDANT VERSION** P-1-H



**CAN CONNECTIONS**

1. GROUND
2. +SUPPLY
3. GROUND
4. CAN-H
5. CAN-L

**REDUNDANT VERSION** O-1-R



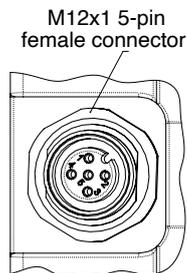
**ANALOG OUTPUT CONNECTIONS**

1. + SUPPLY CH1
2. GROUND CH1
3. OUTPUT CH1
4. n.c.
5. + SUPPLY CH2
6. GROUND CH2
7. OUTPUT CH2
8. n.c.

**CAN CONNECTIONS**

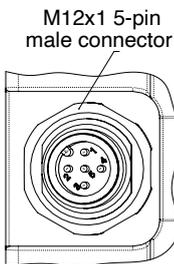
1. + SUPPLY CH1
2. GROUND CH1
3. CAN-H CH1
4. CAN-L CH1
5. + SUPPLY CH2
6. GROUND CH2
7. CAN-H CH2
8. CAN-L CH2

**SINGLE/REDUNDANT/HALF-REDUNDANT IN-OUT VERSION** P-3-(S/R/H)



**CAN CONNECTIONS**

1. GROUND
2. +SUPPLY
3. GROUND
4. CAN-H
5. CAN-L

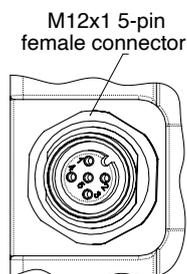


**CAN CONNECTIONS**

1. GROUND
2. +SUPPLY
3. GROUND
4. CAN-H
5. CAN-L

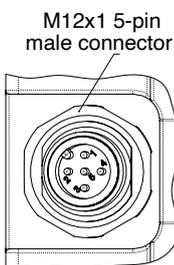
VIEW FROM N

**SINGLE/REDUNDANT/HALF-REDUNDANT IN-OUT VERSION** N-3-(S/R/H)



**CAN CONNECTIONS**

1. FLOATING
2. +SUPPLY
3. GROUND
4. CAN-H
5. CAN-L



**CAN CONNECTIONS**

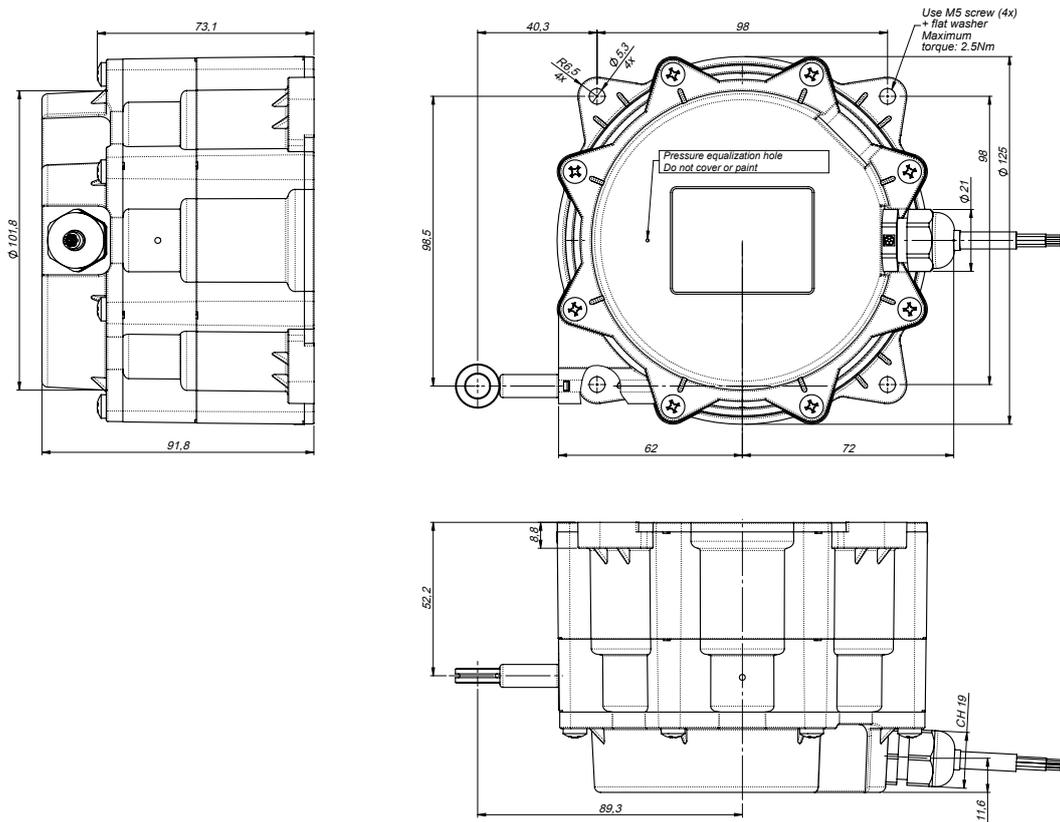
1. FLOATING
2. +SUPPLY
3. GROUND
4. CAN-H
5. CAN-L

PIN 1 male and female are internally connected

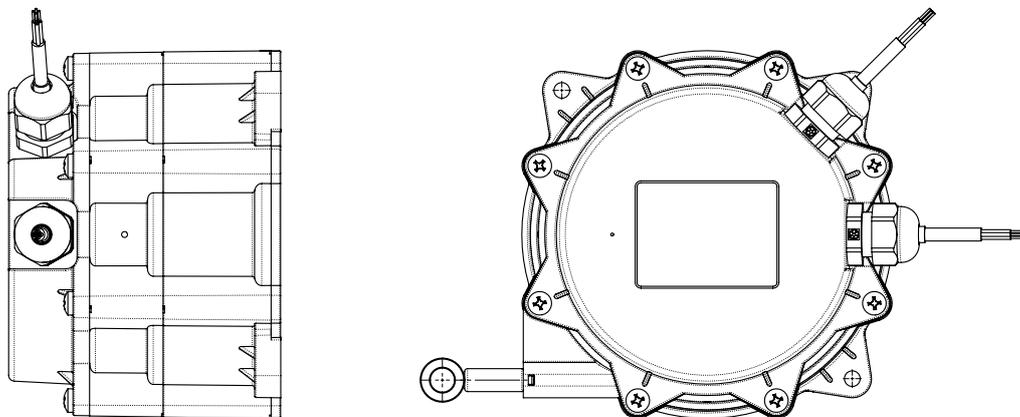
VIEW FROM N

ITEMS MARKED "n.c." MUST NOT BE CONNECTED

## MECHANICAL DIMENSIONS - CABLE VERSION



## MECHANICAL DIMENSIONS - IN-OUT (S/R/H) 2x CABLE CAN VERSION

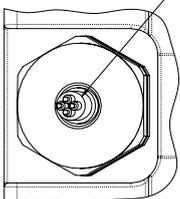


## ELECTRICAL CONNECTION - CABLE VERSION

**SINGLE VERSION  
IN-OUT VERSION**

**F-0-(S/H)  
F-3-(S/R/H)**

IEC 60228 Cable  
4 pole 0.34mm<sup>2</sup>  
PUR OD 4.4mm



**ANALOG OUTPUT  
CONNECTIONS**

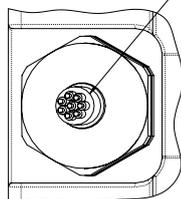
RED	+SUPPLY
BLACK	GROUND
BLUE	OUTPUT
WHITE	n.c

**CAN  
CONNECTIONS**

RED	+SUPPLY
BLACK	GROUND
BLUE	CAN-H
WHITE	CAN-L

**REDUNDANT VERSION F-0-R**

IEC 60228 Cable  
8 pole 0.34mm<sup>2</sup>  
PUR OD 5.8mm



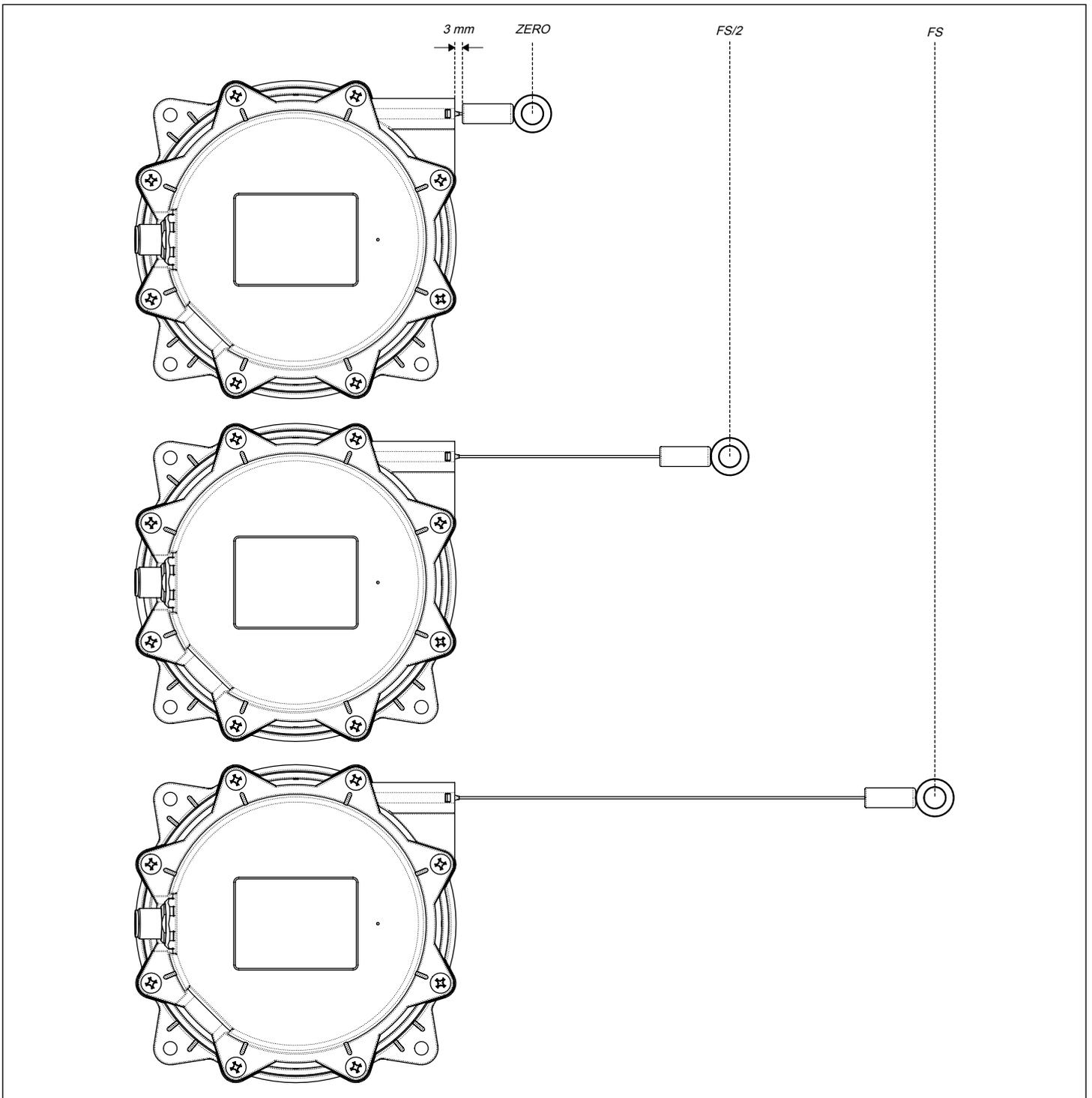
**ANALOG OUTPUT  
CONNECTIONS**

WHITE	+ SUPPLY CH1
BROWN	GROUND CH1
GREEN	OUT CH1
YELLOW	n.c.
GREY	+ SUPPLY CH2
PINK	GROUND CH2
BLUE	OUT CH2
RED	n.c

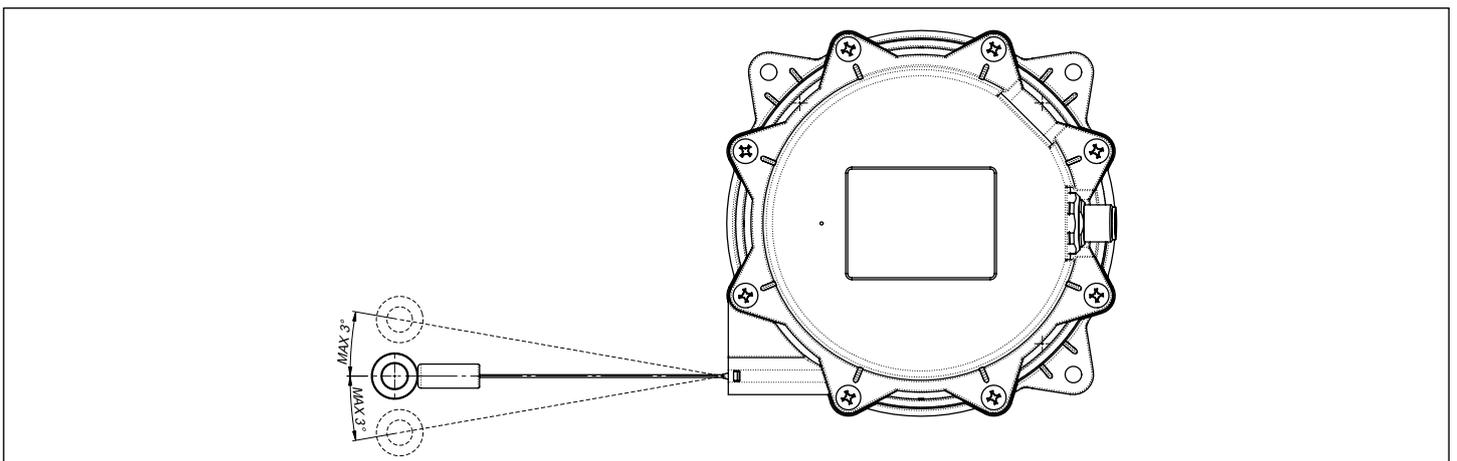
**CAN  
CONNECTIONS**

WHITE	+ SUPPLY CH1
BROWN	GROUND CH1
GREEN	CAN-H CH1
YELLOW	CAN-L CH1
GREY	+ SUPPLY CH2
PINK	GROUND CH2
BLUE	CAN-H CH2
RED	CAN-L CH2

## SENSOR OUTPUT



## INSTALLATION



## ORDERING CODE

TRANSDUCER TYPE	
Wire transducer	<b>S</b>

ELECTRICAL CONNECTIONS	
M12 4P connector	<b>M</b>
M12 5P connector (CAN pin 1 n.c.)	<b>N</b>
M12 8P connector (only for redundant versions)	<b>O</b>
M12 5P connector (CAN pin 1 GROUND)	<b>P</b>
Cable output	<b>F</b>

CONNECTOR OPTIONS	
Cable output	<b>0</b>
1 male M12 4P or M12 5P connector (single/redundant version analog and CANopen output) or 1 male M12 8P connector (only for redundant version)	<b>1</b>
2 male M12 4P connectors (redundant version) or 2 male M12 5P connectors (redundant version)	<b>2</b>
1 male M12 5P connector and 1 female M12 5P connector or cable output (only for IN-OUT CANopen version)	<b>3</b>

CIRCUIT TYPE	
Single	<b>S</b>
Redundant	<b>R</b>
Half-redundant (only for CANopen output)	<b>H</b>

MEASUREMENT RANGE	
10000 mm	<b>100C</b>
12500 mm	<b>125C</b>

SUPPLY VOLTAGE	
+10...36 V DC	<b>H</b>

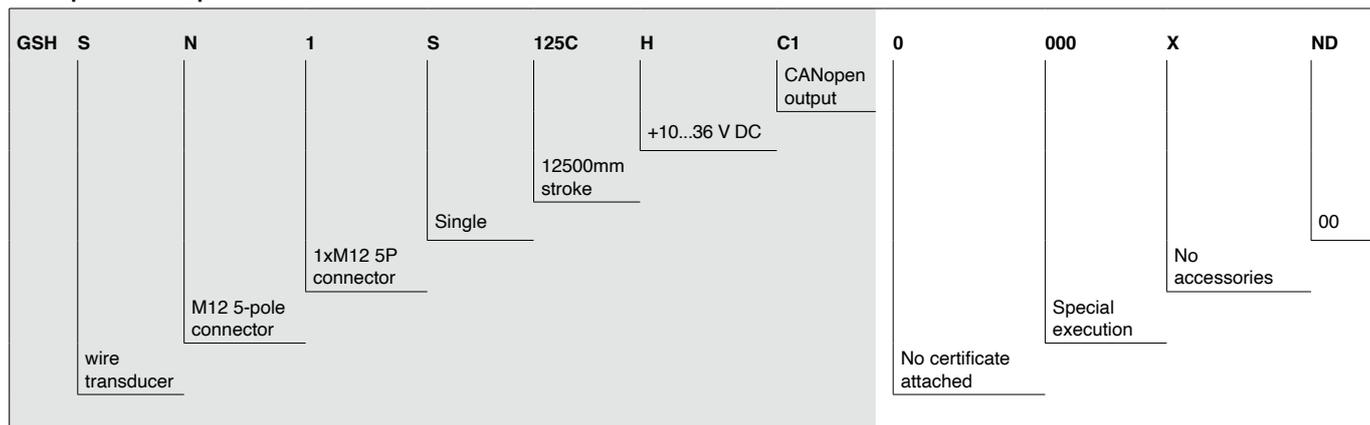
OUTPUT TYPE	
0,5...4,5 V (powered at +10...36 V DC)	<b>A1</b>
0...10 V (powered at +11...36 V DC)	<b>A2</b>
4...20 mA (powered at +10...36 V DC)	<b>A3</b>
CANopen (powered at +10...36 V DC)	<b>C1</b>

CERTIFICATES	
<b>0</b>	No certificate enclosed
<b>L</b>	Linearity curve enclosed

ACCESSORIES	
<b>X</b>	No accessories
<b>C</b>	<b>CON293</b> : 4-pin female mating connector M12x1; IP67 protection degree
<b>D</b>	<b>CON469</b> : 8-pin female mating connector M12x1; IP67 protection degree
<b>E</b>	<b>CON031</b> : 5-pin female mating connector M12x1; IP67 protection degree

CABLE LENGTH	
<b>10</b>	1 m cable
<b>20</b>	2 m cable
<b>30</b>	3 m cable
<b>50</b>	5 m cable
<b>80</b>	8 m cable
<b>A0</b>	10 m cable
.....	other lengths on request

Example of description: **GSHS1S125CHC1 0000X00**



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