

### ABSOLUTE SINGLETURN PARALLEL ENCODER DESCRIPTION

Resolutions available up to 13 bit and 8192 ppr. Wide application range thanks to several models and different flange types. This series assures high reliability even in the most tough industrial applications. It is available with cable connector output and protection class up to IP 66. Gray and binary code output with several electronics available: NPN, NPN OPEN COLLECTOR, PNP, PNP OPEN COLLECTOR and PUSH PULL.

### ABSOLUTE SINGLETURN SSI ENCODER DESCRIPTION

This series is designed to satisfy the new serial transmission philosophy of data output. A 13 bit word data is the standard output for these encoders. Meaningful bits are proportionally to the chosen encoder resolution. This type of transmission reduces wiring issues in order to maintain outstanding device performances. Only a four wire connection is needed: a pair for the position code and the other one for the clock signal. Both signals are transmitted by differential logic. In order to satisfy all dimensional requirements, a wide and complete range of mechanical combinations are available.

## PARALLEL ENCODER ORDERING CODE

<p><b>SERIES</b> absolute encoder singleturn EA</p> <p><b>DIMENSION</b> mm 58 mm 63 mm 90 mm 115</p> <p><b>TYPE</b> synchronous flange ø 31.75 mm (EA63) A synchronous flange ø 40 mm (EA90) A REO444 flange (EA115) A synchronous flange ø 50 mm (EA58) B fixing flange ø 36 mm (EA58) C centering square flange ø 31.75 mm (EA63) D centering square flange ø 50 mm (EA63) E blind hollow shaft with spring (EA58 / 63) F blind hollow shaft with anti-rotation pin (EA63) G</p> <p><b>RESOLUTION</b> (powers of 2) ppr from 2 to 8192 (multiples and submultiples of 360) ppr from 90 to 3600 (multiples and submultiples of 1000) ppr from 250 to 4000</p> <p><i>N.B.: please directly contact our offices for pulses availability</i></p> <p><b>CODE TYPE</b> Binary B Gray (standard) G Binary offset code (0-XXX) BC Gray offset code (0-XXX) GC <i>powers of 2 except for the offset code</i></p> <p><b>INPUT VOLTAGE</b> 5 V DC 5 8 ... 28 V DC 8/28</p> <p><b>OUTPUT TYPES</b> NPN (negative logic standard) N NPN OPEN COLLECTOR (negative logic standard) C PNP (positive logic standard) R PNP OPEN COLLECTOR (positive logic standard) U PUSH PULL with short circuit protection (positive logic standard) P</p>	<p><b>VARIANT</b> XXX custom version</p> <p><b>OUTPUT DIRECTION</b> A axial R radial</p> <p><b>OUTPUT TYPE</b> PD cable output 16 poles (standard length 1.5m) PE cable output 32 poles (standard length 1.5m) MA 19 poles MS type connection</p> <p><b>MAX ROTATION SPEED</b> 3 3000 rpm with IP 66 6 6000 rpm</p> <p><b>ENCLOSURE RATING</b> X IP 54 S optional IP 66 (with the exception of EA58 F - EA63 F/G - EA115)</p> <p><b>SHAFT DIAMETER</b> 6 mm - 58B 8 mm - 58B - 63A/D/E - 90A 9 mm (9.52 mm 3/8") - 63A/D/E - 90A 10 mm - 58B/C - 63A/D/E - 90A - 115A 11 mm - 115A</p> <p><b>BORE DIAMETER ONLY FOR MOD. 58F - 63F/G</b> 8 mm 9 mm (9.52 mm 3/8") 10 mm 12 mm 14 mm 15 mm</p> <p><b>OPTIONS</b> L Latch S Strobe (only for binary code) X to be reported if not used</p> <p><b>LOGIC</b> N Negative P Positive</p>
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SINGLE TURN ABSOLUTE ENCODERS

Output connections for PARALLEL encoder				
Function	B / G	16 wire cable colours	32 wire cable colours	Pin "M19MP"
bit 1 (LSB)	B <sup>0</sup> / G <sup>0</sup>	green	green	A
bit 2	B <sup>1</sup> / G <sup>1</sup>	yellow	yellow	B
bit 3	B <sup>2</sup> / G <sup>2</sup>	blue	blue	C
bit 4	B <sup>3</sup> / G <sup>3</sup>	brown	brown	D
bit 5	B <sup>4</sup> / G <sup>4</sup>	orange	orange	E
bit 6	B <sup>5</sup> / G <sup>5</sup>	white	white	F
bit 7	B <sup>6</sup> / G <sup>6</sup>	gray	gray	G
bit 8	B <sup>7</sup> / G <sup>7</sup>	violet	violet	H
bit 9	B <sup>8</sup> / G <sup>8</sup>	gray-pink	gray-pink	J
bit 10	B <sup>9</sup> / G <sup>9</sup>	white-green	white-green	K
bit 11	B <sup>10</sup> / G <sup>10</sup>	brown-green	brown-green	L
bit 12	B <sup>11</sup> / G <sup>11</sup>	white-yellow	white-yellow	M
bit 13	B <sup>12</sup> / G <sup>12</sup>	yellow-brown	yellow-brown	N
LATCH	/	/	yellow-gray	R
0 Volt	/	black	black	T
U / D	/	red-blue	red-blue	U
+ Vdc	/	red	red	V

EA PARALLEL - SSI

## SSI ENCODER ORDERING CODE

<p><b>SERIES</b> absolute encoder singleturn EA</p> <p><b>SIZE</b> mm 58 mm 63 mm 90 mm 115</p> <p><b>TYPE</b> synchronous flange <math>\varnothing</math> 31.75 mm (EA63) A synchronous flange <math>\varnothing</math> 40 mm (EA90) A REO444 flange (EA115) A synchronous flange <math>\varnothing</math> 50 mm (EA58) B fixing flange <math>\varnothing</math> 36 mm (EA58) C centering square flange <math>\varnothing</math> 31.75 mm (EA63) D centering square flange <math>\varnothing</math> 50 mm (EA63) E blind hollow shaft with spring (EA58 / 63) F blind hollow shaft with anti-rotation pin (EA63) G</p> <p><b>RESOLUTION</b> (powers of 2) ppr from 2 to 8192 (multiples and submultiples of 360) ppr from 90 to 3600 (multiples and submultiples of 1000) ppr from 250 to 4000</p> <p><i>N.B.: please directly contact our offices for pulses availability</i></p> <p><b>CODE TYPE</b> Binary B Gray (standard) G Binary offset code (0-XXX) BC Gray offset code (0-XXX) GC</p> <p><i>N.B.: powers of 2 except for the offset code</i></p> <p><b>POWER SUPPLY</b> 5 VDC 5 8 ... 28 VDC 8/28</p> <p><b>OUTPUT TYPE</b> SSI (Serial Synchronous Interface) S</p>	<p><b>VARIANT</b> XXX custom version</p> <p><b>OUTPUT DIRECTION</b> A axial R radial</p> <p><b>OUTPUT TYPE</b> PC cable output (standard length 1.5m) MC 7 poles MS type connection HA 12 poles H type connection</p> <p><b>MAX ROTATION SPEED</b> 3 3000 rpm with IP 66 6 6000 rpm</p> <p><b>ENCLOSURE RATING</b> X IP 54 S optional IP 66 with the exception of EA58 F - EA63 F/G - EA115</p> <p><b>SHAFT DIAMETER</b> 6 mm - 58B 8 mm - 58B - 63A/D/E - 90A 9 mm (9.52 mm 3/8") - 63A/D/E - 90A 10 mm - 58B/C - 63A/D/E - 90A - 115A 11 mm - 115A</p> <p><b>BORE DIAMETER ONLY FOR MOD. 58F - 63F/G</b> 8 mm 9 mm (9.52 mm 3/8") 10 mm 12 mm 14 mm 15 mm</p> <p><b>OPTIONS</b> X to be reported if not used ZE code reset</p> <p><b>LOGIC</b> X to be reported if not used</p>
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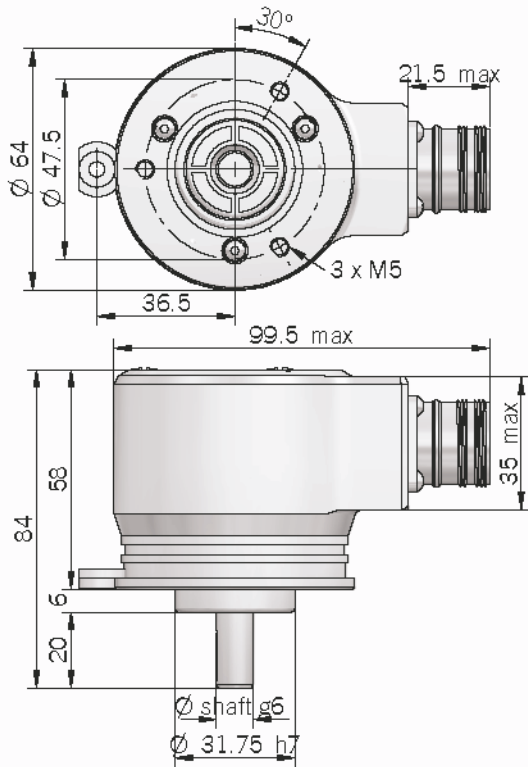
Output connections for SSI encoder			
Funzione	Cable colours	Pin "M07MP"	Pin "H12"
+ Vdc	red	G	8
0 Volt	black	F	1
U / D	red-blue	E	5
data +	green	C	2
data -	brown	D	10
clock +	yellow	A	3
clock -	orange	B	11
RESET	white	/	4

SINGLETURN ABSOLUTE ENCODERS

EA PARALLEL - SSI

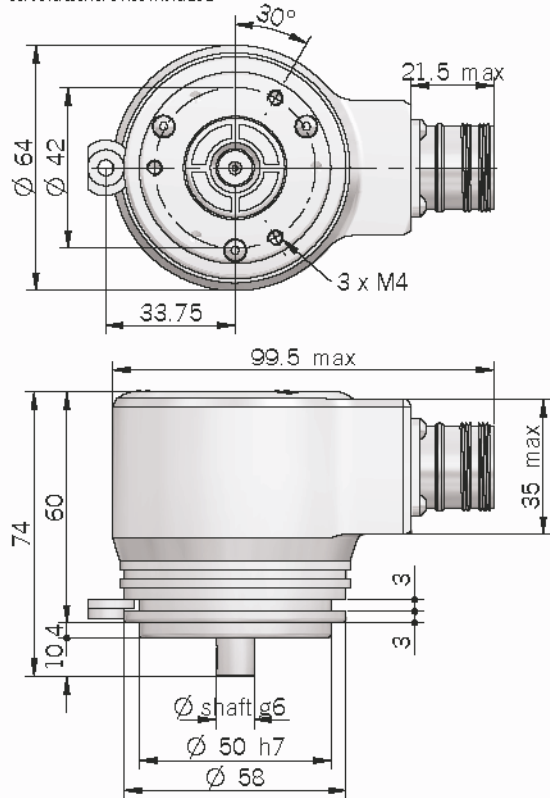
### EA 63 A

\* servofasteners not included

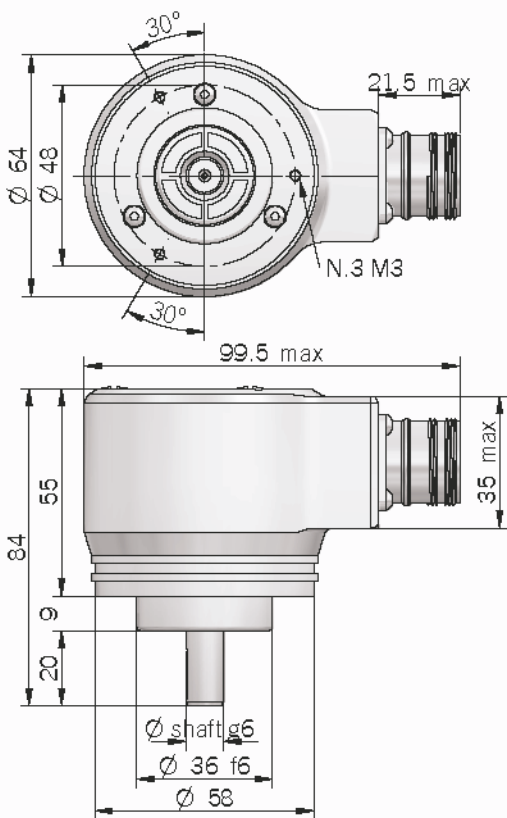


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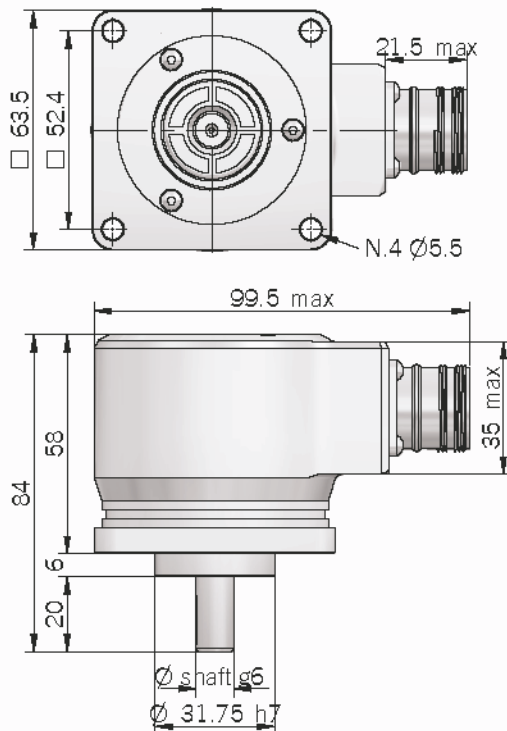
\* servofasteners not included



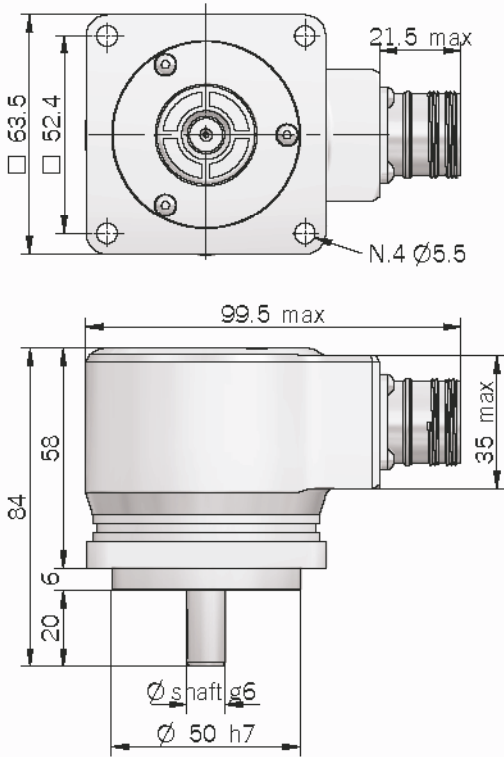
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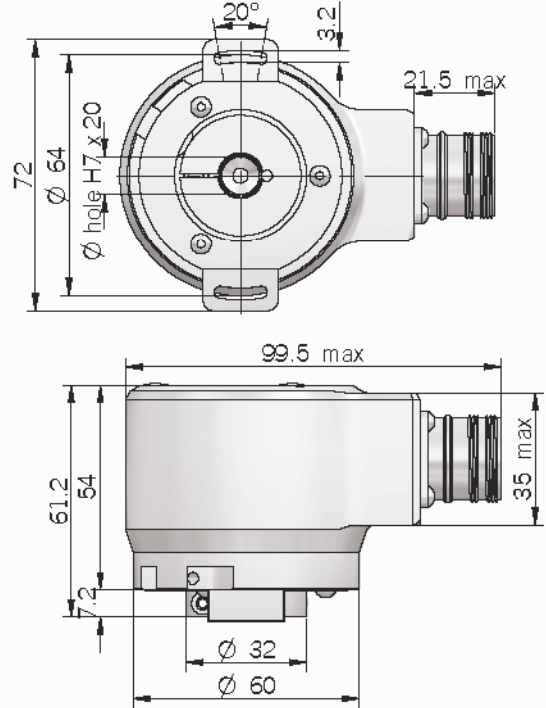
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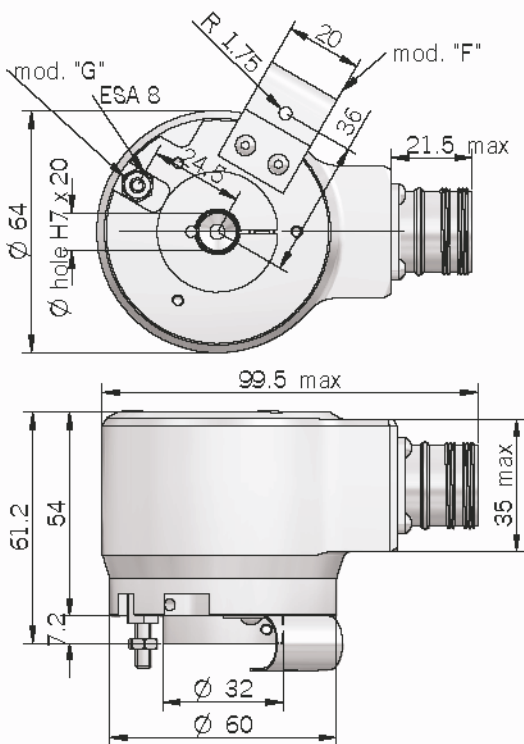
**EA 63 E**



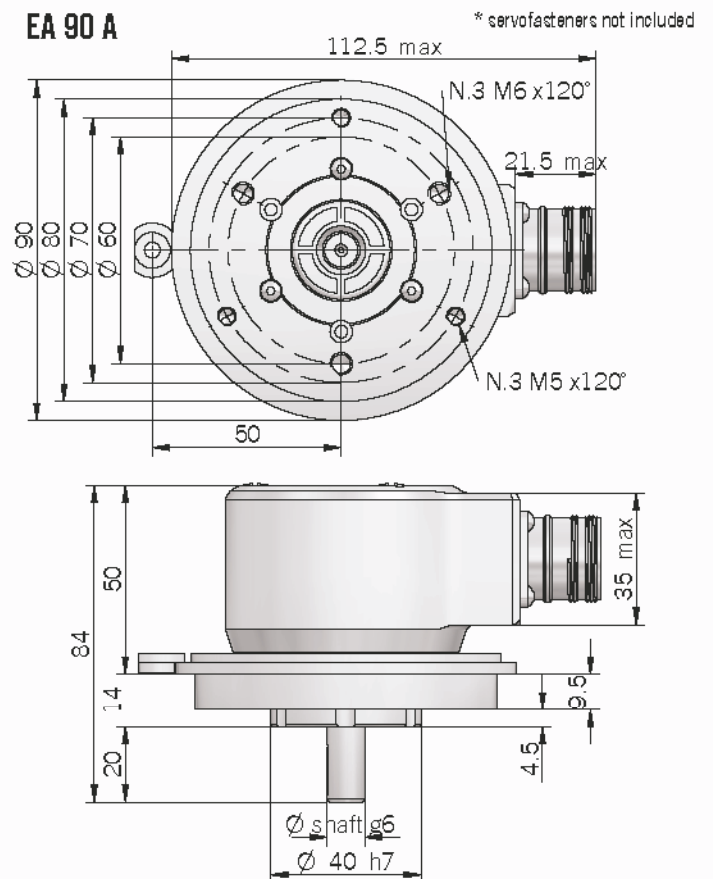
**EA 58 F**



**EA 63 F - G**

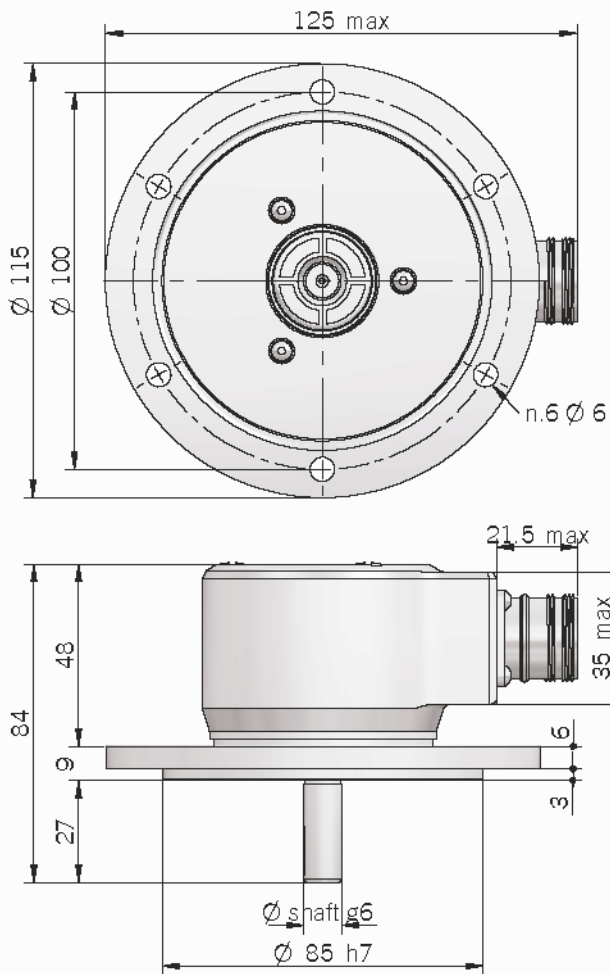


**EA 90 A**

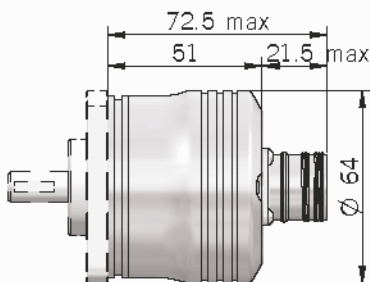


\* servofasteners not included

## EA 115 A



### Dimensions with cover axial output



## Electrical specifications

<b>Resolution</b>	from 2 to 8192
<b>Power supply</b>	5 V DC $\pm$ 10% (only SSI) 8 ... 28 V DC $\pm$ 5%
<b>Current consumption without load</b>	100 mA
<b>Max load current</b>	20 mA for channel (push pull) 40 mA for channel (NPN / PNP)
<b>Electronic interface</b>	NPN / NPN OPEN COLLECTOR / PNP / PNP OPEN COLLECTOR / PUSH PULL / RS422 SSI
<b>Auxiliary inputs (U/D - Latch - Reset)</b>	active high (+Vdc) connect to 0V if not used / Reset $t_{min}$ 150 ms
<b>Max output frequency</b>	25 kHz parallel 100 kHz ... 1MHz SSI
<b>SSI monostable time (Tm)</b>	18 $\mu$ s
<b>SSI pause time (Tp)</b>	> 35 $\mu$ s
<b>Accuracy</b>	$\pm$ 1/2 LSB
<b>Counting direction</b>	decreasing clockwise (shaft view)
<b>Start-up time</b>	150 ms
<b>Electromagnetic compatibility</b>	IEC 81000-6-2 IEC 81000-6-4

## Mechanical specifications

<b>Shaft diameter (mm)</b>	6 (58 B) 8 (58 B - 63 A / D / E - 90 A) 9.52 (63 A / D / E - 90 A) 10 (58 B / C - 63 A / D / E - 90 A - 115 A) 11 (115 A)
<b>Bore diameter (only for mod.58F - 63F/G)</b>	8 / 9 / 10 / 12 / 14 / 15 mm
<b>Max rotation speed</b>	6000 rpm continuous 3000 rpm continuous for 63G 3000 rpm with IP66 10 N (1 Kp) axial with $\phi$ 6 shaft 20 N (2 Kp) radial with $\phi$ 6 shaft 100 N (10 Kp) axial 100 N (10 Kp) radial
<b>Max shaft load</b>	
<b>Shock</b>	50 G, 11 ms (IEC 60068-2-27)
<b>Vibrations</b>	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
<b>Bearings life</b>	10 <sup>9</sup> revolutions
<b>Bearings</b>	n° 2 ball bearings
<b>Shaft material</b>	AISI 303 stainless steel / 1.4305
<b>Body material</b>	EN-AW 2011 aluminum
<b>Housing material</b>	EN-AW 2011 aluminum
<b>Enclosure rating</b>	IP 54 (IEC 60529) IP 66 (IEC 60529) optional - 58B/C - 63A/D/E - 90A
<b>Operating temperature</b>	0° ... +60 °C
<b>Storage temperature</b>	-15° ... +70 °C
<b>Weight</b>	350 g - 58B/C - 63A/D/E/G 750 g - 90A - 115A
<b>Accessories</b>	set N° 3 fasteners for models -63A -58B -90A Ord. Cod.: 94080001

