

# Compact cylinders to AFNOR NF E49-004-1 and NF E49-004-2 standards

# series BU

## DESCRIPTION

Cylinders series "BU" are available from Ø 20 to Ø 100 and, complying with AFNOR NF E49-004-1 and NF E49-004-2 standards, they're interchangeable also without using anchorages. Besides from Ø 32 to Ø 100 they are available even with end caps distance between centers to ISO 15552 standard. Cylinder series "BU" with magnetic piston type can be supplied with magnetic sensors inserted in the slots arranged on the extruded profile.

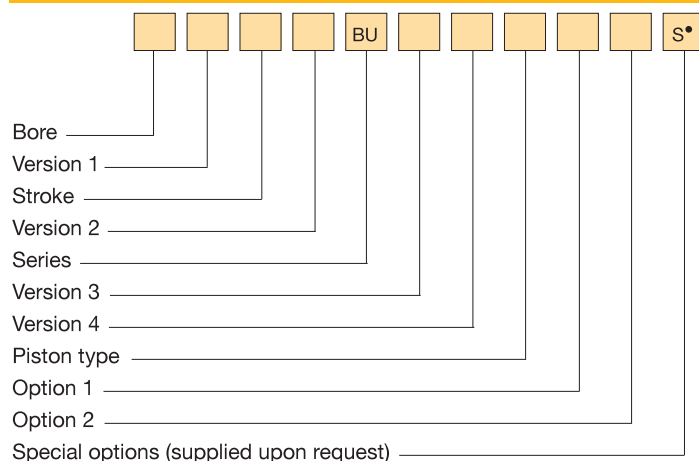
## TECHNICAL DATA

Operating pressure	Single acting: 2 ÷ 10 bar; Double acting: 1 ÷ 10 bar.
Working temperature	0 ÷ +80 °C (-20 °C with dry air) 0 ÷ +130 °C with seals for high temperatures (-10°C with dry air; for single acting versions: max 100°C)
Fluid	Filtered, unlubricated or continuous lubricated compressed air
Versions	Double acting; Single acting front spring; Single acting rear spring; Through rod; Double push tandem; Double stroke tandem; Opposed tandem; Non-rotating piston rod device; Hollow through rod; Distance between centers to ISO standard
Bore	Ø 20, 25, 32, 40, 50, 63, 80, 100
Port size	Ø 20 - 25 = M 5; Ø 32 ÷ 100 = G 1/8
Standard strokes (mm)	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 100, 125, 150, 160, 200, 250, 300, 320, 350, 400
Maximum strokes (mm)	Ø 20 - 25 = 200; Ø 32 ÷ 63 = 300; Ø 80 - 100 = 400
Max. strokes single acting (mm)	Ø 20 ÷ 100 = 25
Max. strokes hollow through rod (mm)	Ø 20 ÷ 32 = 40; Ø 40 ÷ 63 = 60; Ø 80 - 100 = 80
Max. strokes non-rotating (mm)	Ø 20 - 25 = 40; Ø 32 ÷ 100 = 80

## MATERIALS

End caps	Extruded profile, anodized aluminium alloy
Cylinder barrel	Extruded profile, 20 µm anodized aluminium alloy
Screws	Steel
Piston rod	Ø 20 - 25 = AISI 303 rolled stainless steel Ø 32 ÷ 100 = C45 chromium-plated steel
Rod nut	Steel Stainless steel
Piston rod bearing	Self-lubricating sintered bronze
Piston	Ø 20 - 25 = galvanized steel (supplied with and without magnet) Ø 32 ÷ 100 = aluminium alloy (supplied with and without magnet)
Seals	Polyurethane
Springs	Springs steel

## ORDER KEY



P.S.: *Magnetic sensors* FM 100 (see chapter magnetic sensors from page 1.93)  
• See technical data on page 0.12

## ORDER EXAMPLES

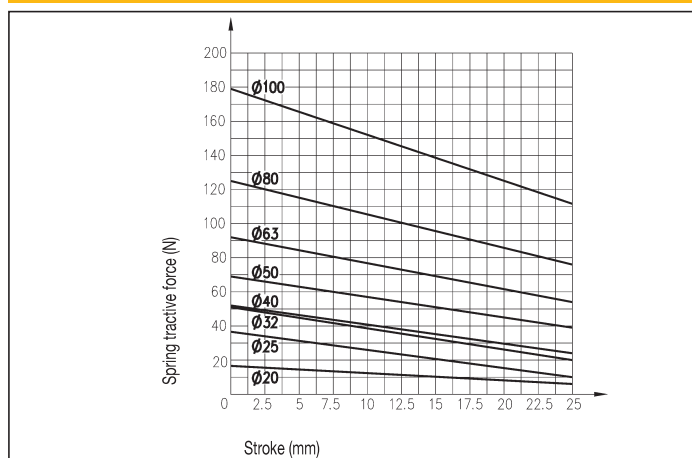
Basic cylinder Ø50, 50 mm stroke, double acting, magnetic piston type, female threaded piston rod 50/50 DBU/M8

Cylinder Ø63, through rod, 80 mm stroke, double acting, magnetic piston type, stainless steel and male threaded piston rod 63R80 DBU/M17

Cylinder Ø80, double stroke tandem, 50 mm stroke 1 + 100 mm stroke 2, double acting, magnetic piston type, female threaded piston rod 80P50+100 DBU/M8



## SPRING THEORETICAL TRACTIVE FORCE



## VERSION 1

/ Basic cylinder	T Double push tandem
R Through rod	P Double stroke tandem
F Hollow through rod	V Opposed tandem

## VERSION 2

D Double acting	Y Single acting rear spring
S Single acting front spring	

## VERSION 3

I End caps distance between centers to ISO 15552 standard\*

## VERSION 4

A Non-rotating piston rod device (supplied only with female threaded piston rod option)

## PISTON TYPE

Non-magnetic /M Magnetic

## OPTION 1

1 Stainless steel piston rod and rod nut**	3 Stainless steel piston rod and rod nut and seals for high temperatures***
2 Seals for high temperatures***	

## OPTION 2

7 Male threaded piston rod	8 Female threaded piston rod
----------------------------	------------------------------

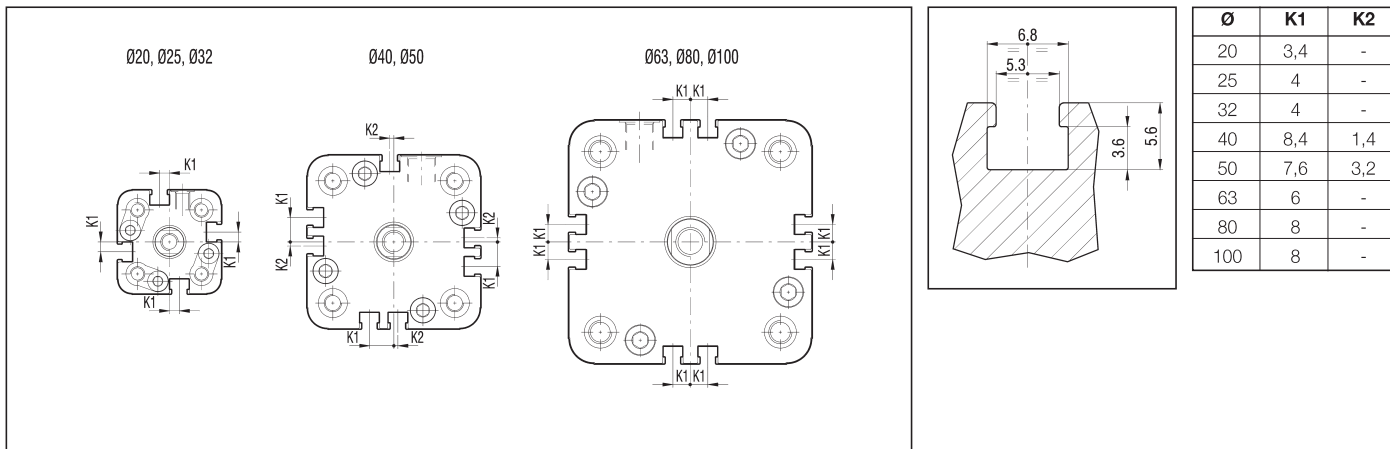
\* Supplied only from Ø 32 to Ø 100  
For versions "T", "P" and "V" contact our commercial office  
\*\* Supplied as standard for Ø 20 and Ø 25  
\*\*\* Supplied only with non-magnetic piston type

P.S.: End caps mountings accessories of Version No. 3 (end caps distance between centers to ISO standard) are the same of the cylinders series "X" and "CPU" (see from page 1.28)

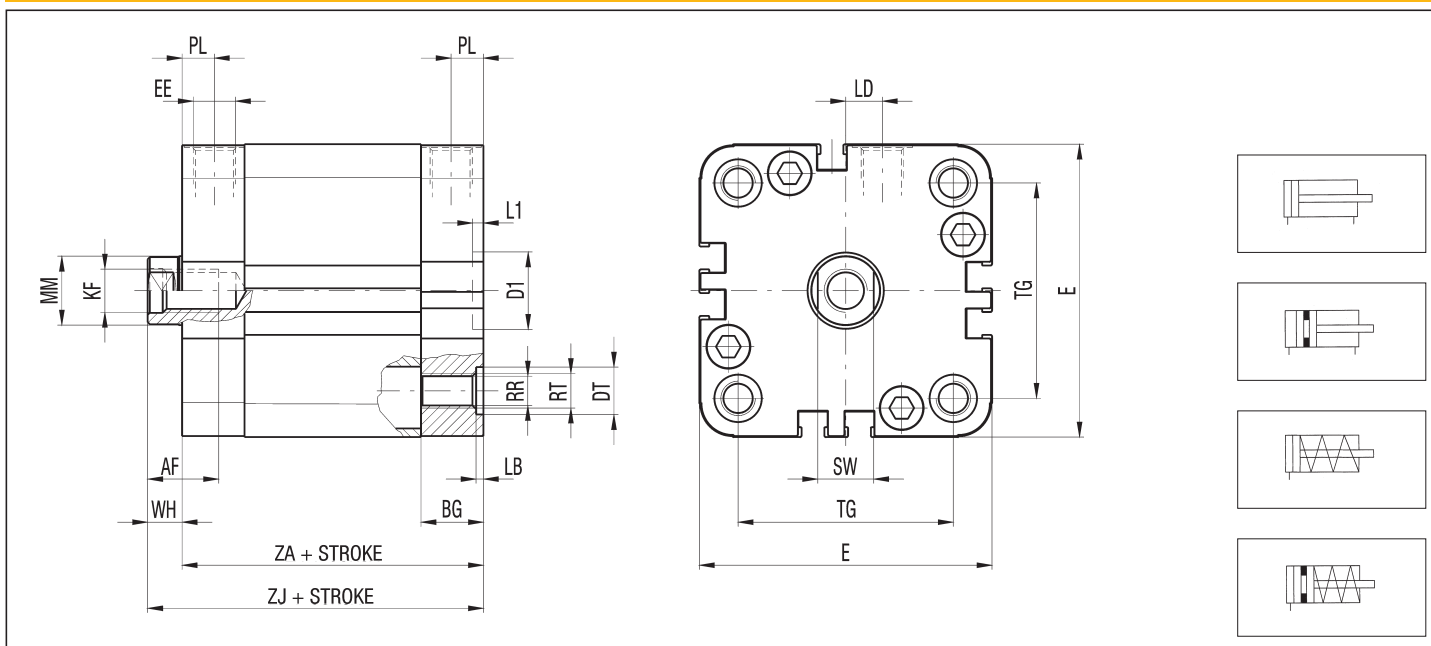
## SPARE PARTS

SEALS KIT			
Polyurethane	Ø/SG/BU	Through rod, polyurethane	Ø/SG/R/BU
For high temperatures	Ø/SG/BU2	Through rod, for high temperatures	Ø/SG/R/BU2

### DISPOSITION OF THE SLOTS FOR MAGNETIC SENSORS



### BU BASIC CYLINDER, FEMALE THREADED PISTON ROD



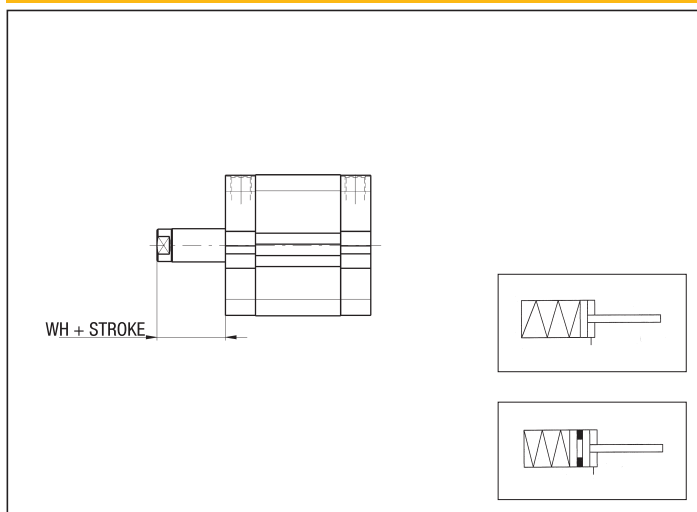
### DIMENSIONS AND WEIGHTS BASIC CYLINDER FEMALE THREADED PISTON ROD

Ø	AF	BG*	D	D1 H11	DT H13	E	EE	KF	LB	LD	L1	MM	PL	RR	RT	SW	TG**		WH	ZA	ZB	ZJ	WEIGHT (g)	INCR. (g) x 5 mm
																	A	I						
20	11,5	12	3,8	12	8	36	M5	M6	4,4	4,5	2,5	10	7	4,3	M5	8	22	-	6	37	62	43	130	10
25	11,5	13	3,8	12	8	40	M5	M6	4,4	5,5	2,5	10	8	4,3	M5	8	26	-	6	39	65	45	160	11
32	13	14,5	4,5	14	10,5	50	G 1/8	M8	5,4	5	2,5	12	7,5	5,3	M6	10	32	32,5	7	44	73,5	51	215	16
40	13	14,5	4,5	14	10,5	60	G 1/8	M8	5,4	9,5	2,5	12	7,5	5,3	M6	10	42	38	7	45	75,5	52	330	20
50	16,5	14,5	6	18	11	68	G 1/8	M10	1,7	8,5	2,5	16	7,5	6,4	M8	13	50	46,5	8	45	75,5	53	470	25
63	16,5	14,5	6	18	11	84	G 1/8	M10	1,7	-17,5	2,5	16	7,5	6,4	M8	13	62	56,5	8	50	85,5	58	710	37
80	21	16,5	8	23	15	102	G 1/8	M12	1	-21	3	20	8,5	8,4	M10	16	82	72	8	56	95,5	64	1295	50
100	24,5	19,5	10	28	15	123	G 1/8	M16	3,5	-25	3	25	10	8,4	M10	21	103	89	10	67	114,5	77	2250	70

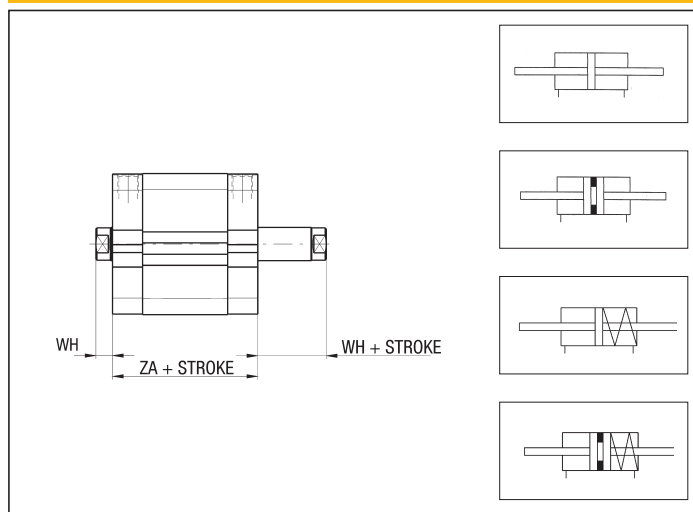
\* IN THE TANDEM VERSIONS (T, P, V), DIMENSION (BG - LB) IS REDUCED OF 5 mm

\*\* A - AFNOR  
I - ISO

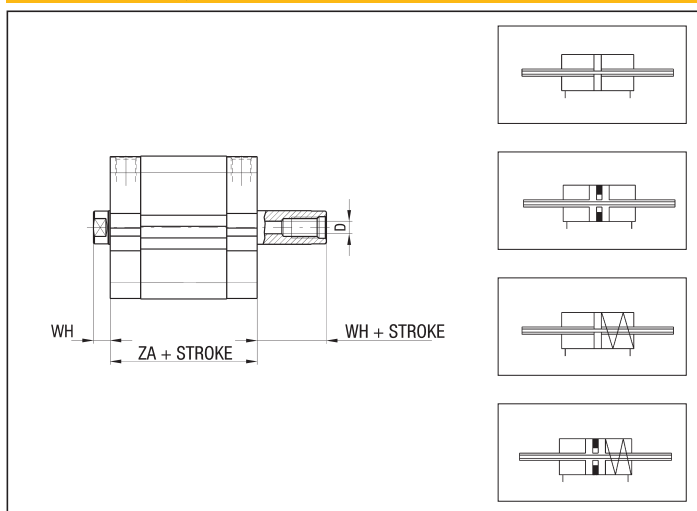
**SINGLE ACTING, REAR SPRING,  
FEMALE THREADED PISTON ROD**



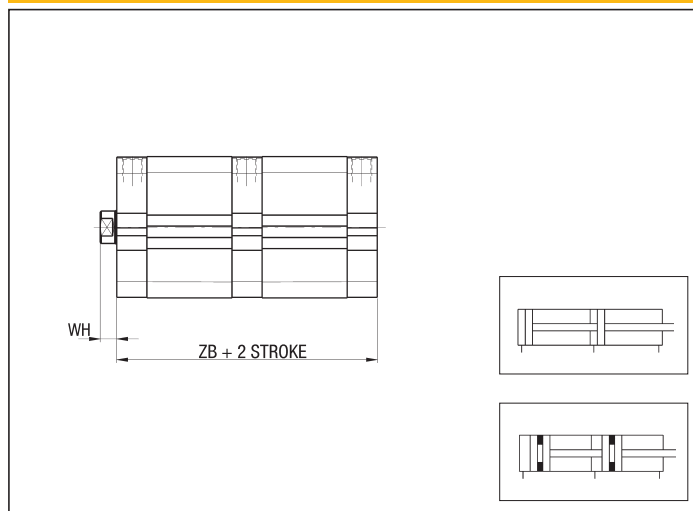
**FEMALE THREADED THROUGH ROD AND  
SINGLE ACTING, FEMALE THREADED THROUGH ROD**



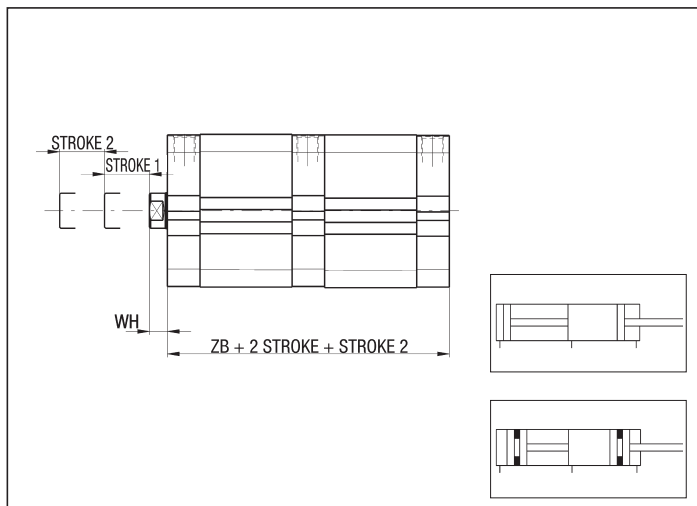
**HOLLOW FEMALE THREADED THROUGH ROD AND  
SINGLE ACTING, HOLLOW FEMALE THREADED THROUGH ROD**



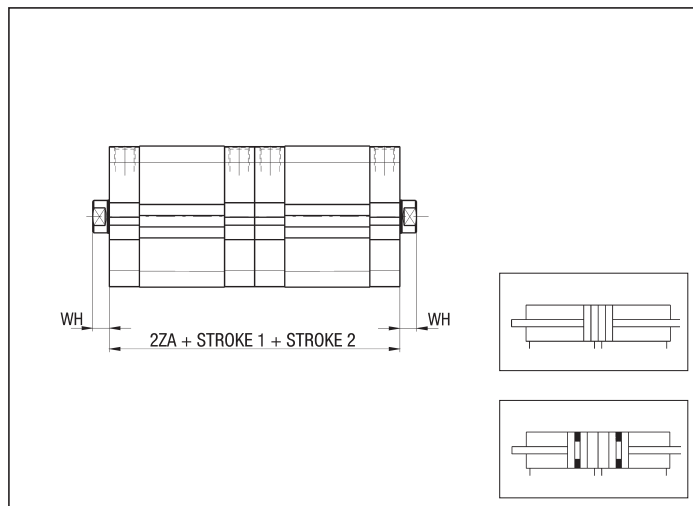
**DOUBLE PUSH TANDEM,  
FEMALE THREADED PISTON ROD**



**DOUBLE STROKE TANDEM, FEMALE THREADED PISTON ROD**

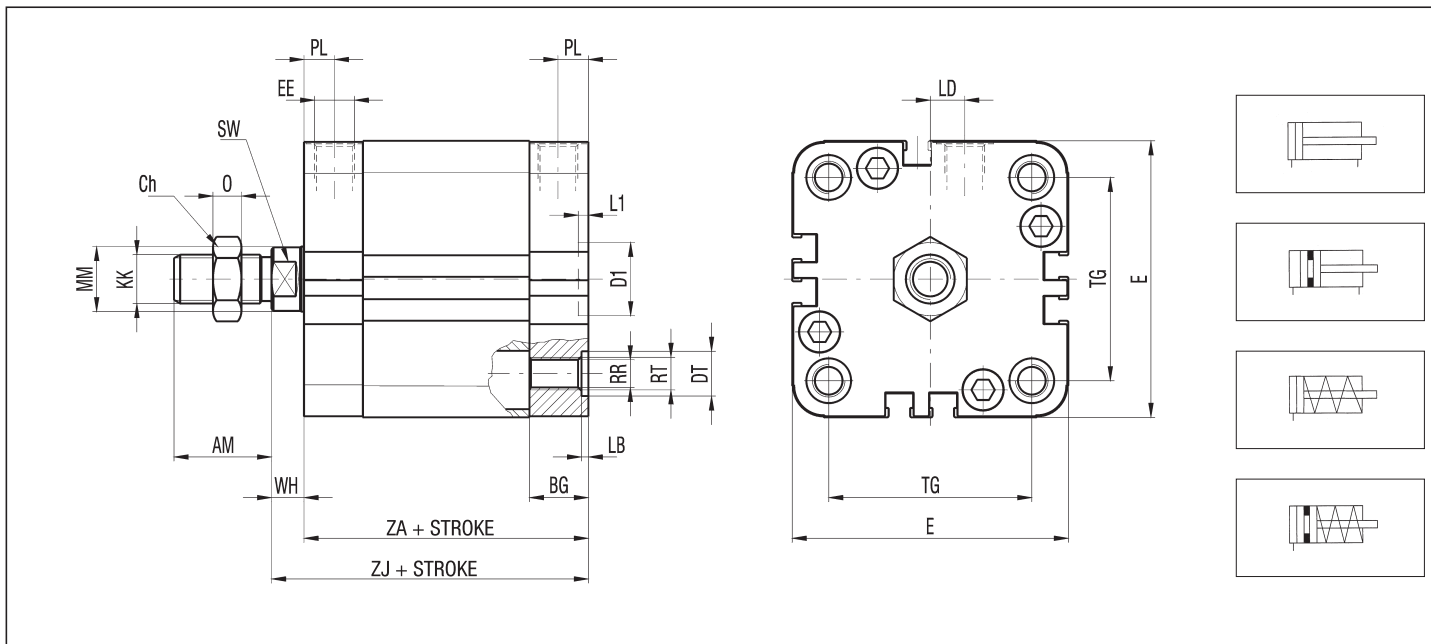


**OPPOSED TANDEM, FEMALE THREADED PISTON ROD**



1

### BU BASIC CYLINDER, MALE THREADED PISTON ROD



P.S.: Rod nut supplied as standard

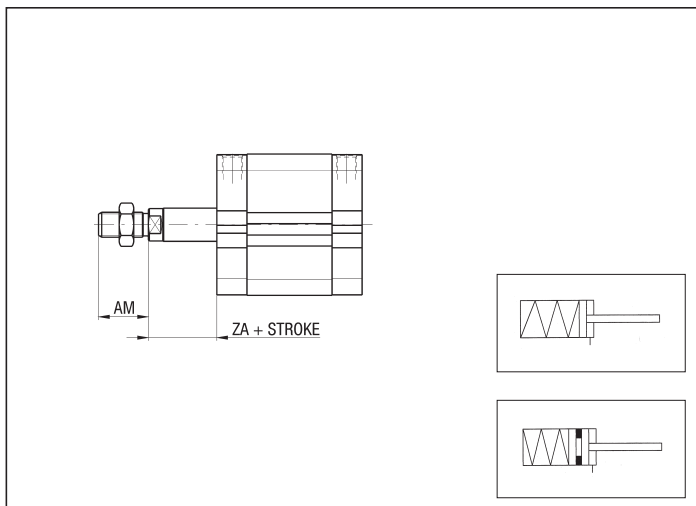
### DIMENSIONS AND WEIGHTS BASIC CYLINDER MALE THREADED PISTON ROD

Ø	AM	BG*	Ch	D	D1 H11	DT H13	E	EE	KK	LB	LD	L1	MM	O	PL	RR	RT	SW	TG**		WH	ZA	ZB	ZJ	WEIGHT (g)	INCR. (g) x 5 mm
																			A	I						
20	22	12	17	3,8	12	8	36	M5	M10x1,25	4,4	4,5	2,5	10	6	7	4,3	M5	8	22	-	6	37	62	43	150	10
25	22	13	17	3,8	12	8	40	M5	M10x1,25	4,4	5,5	2,5	10	6	8	4,3	M5	8	26	-	6	39	65	45	180	11
32	22	14,5	17	4,5	14	10,5	50	G 1/8	M10x1,25	5,4	5	2,5	12	6	7,5	5,3	M6	10	32	32,5	7	44	73,5	51	240	16
40	22	14,5	17	4,5	14	10,5	60	G 1/8	M10x1,25	5,4	9,5	2,5	12	6	7,5	5,3	M6	10	42	38	7	45	75,5	52	355	20
50	24	14,5	19	6	18	11	68	G 1/8	M12x1,25	1,7	8,5	2,5	16	7	7,5	6,4	M8	13	50	46,5	8	45	75,5	53	505	25
63	24	14,5	19	6	18	11	84	G 1/8	M12x1,25	1,7	-17,5	2,5	16	7	7,5	6,4	M8	13	62	56,5	8	50	85,5	58	745	37
80	32	16,5	24	8	23	15	102	G 1/8	M16x1,5	1	-21	3	20	8	8,5	8,4	M10	16	82	72	8	56	95,5	64	1360	50
100	40	19,5	30	10	28	15	123	G 1/8	M20x1,5	3,5	-25	3	25	9	10	8,4	M10	21	103	89	10	67	114,5	77	2390	70

\* IN THE TANDEM VERSIONS (T, P, V), DIMENSION (BG - LB) IS REDUCED OF 5 mm

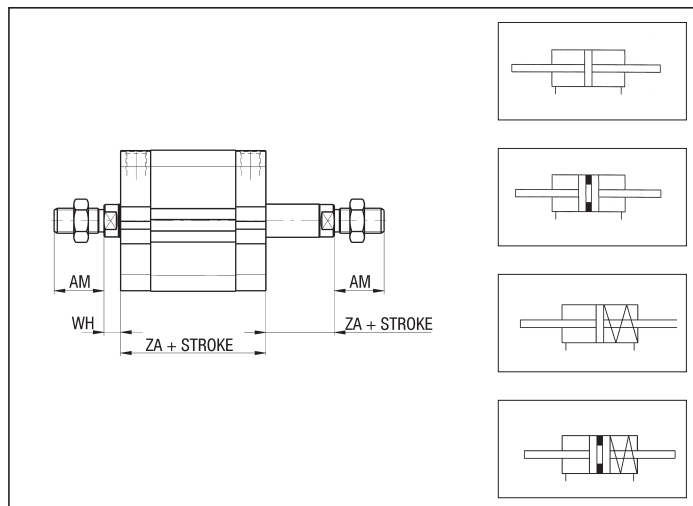
\*\* A - AFNOR  
I - ISO

### SINGLE ACTING, REAR SPRING, MALE THREADED PISTON ROD



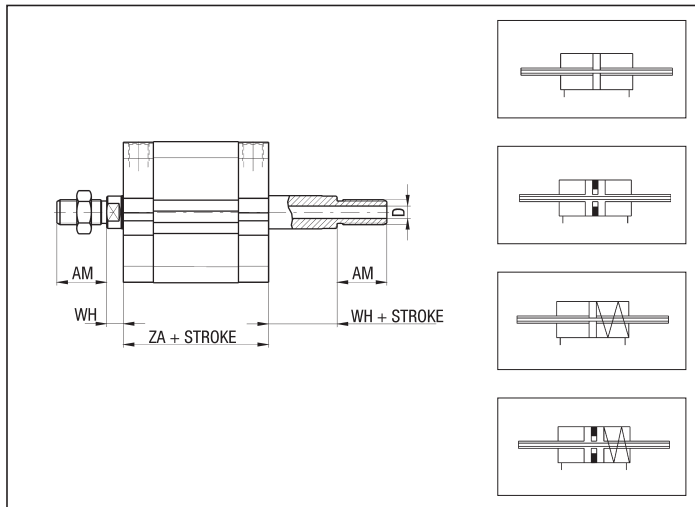
P.S.: Rod nut supplied as standard

### MALE THREADED THROUGH ROD AND SINGLE ACTING, MALE THREADED THROUGH ROD



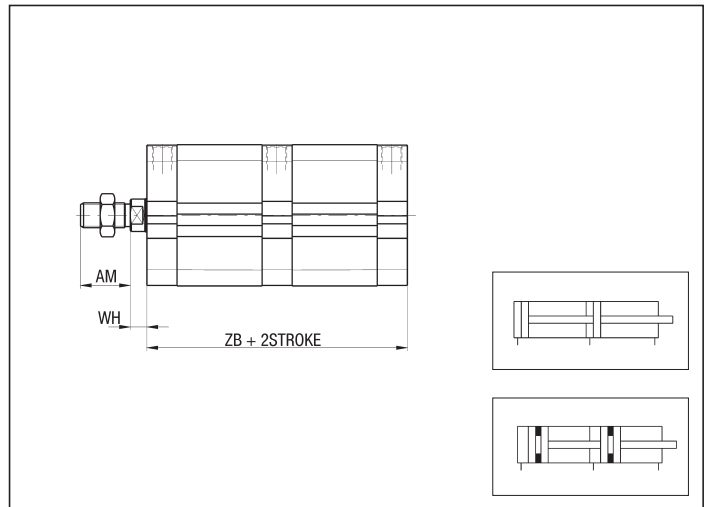
P.S.: Rod nuts supplied as standard

**HOLLOW MALE THREADED THROUGH ROD AND SINGLE ACTING, HOLLOW MALE THREADED THROUGH ROD**



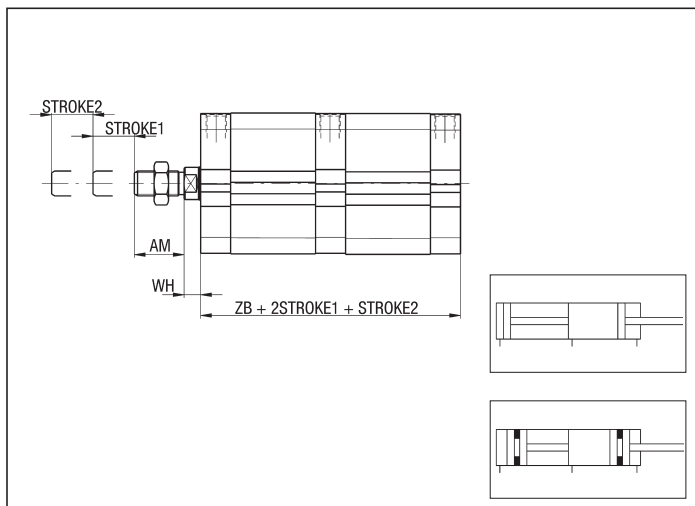
P.S.: Rod nuts supplied as standard

**DOUBLE PUSH TANDEM, MALE THREADED PISTON ROD**



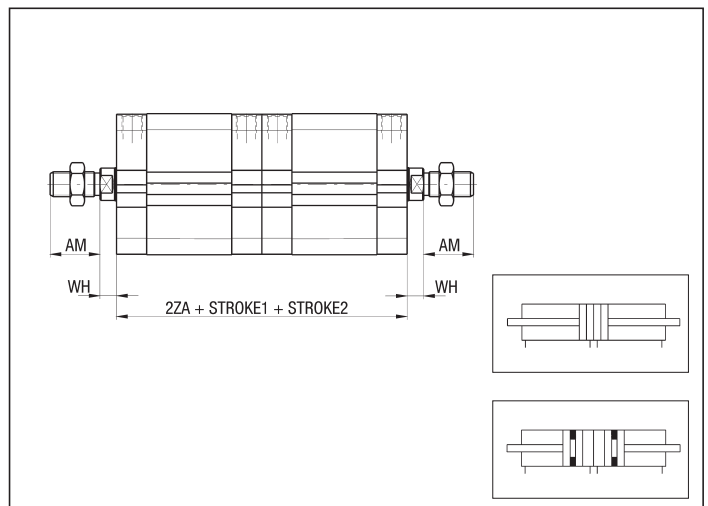
P.S.: Rod nut supplied as standard

**DOUBLE STROKE TANDEM, MALE THREADED PISTON ROD**



P.S.: Rod nut supplied as standard

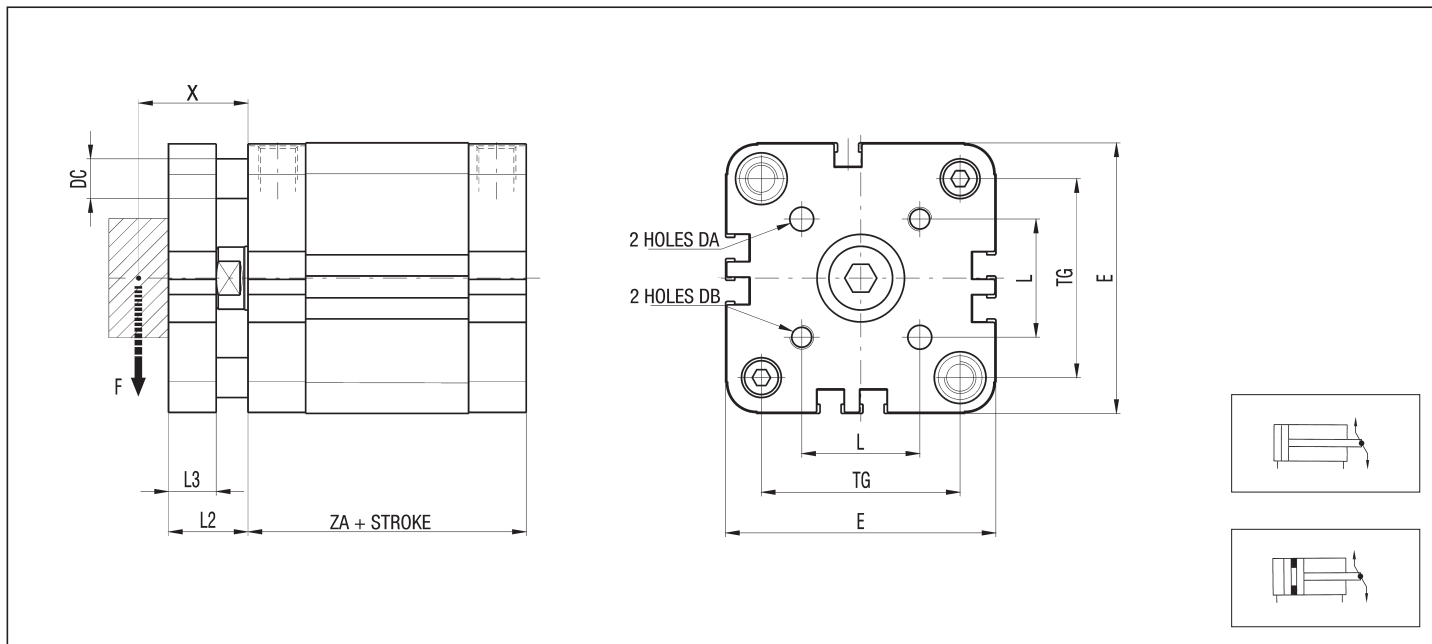
**OPPOSED TANDEM, MALE THREADED PISTON ROD**



P.S.: Rod nuts supplied as standard

### BU NON-ROTATING BASIC CYLINDER

1

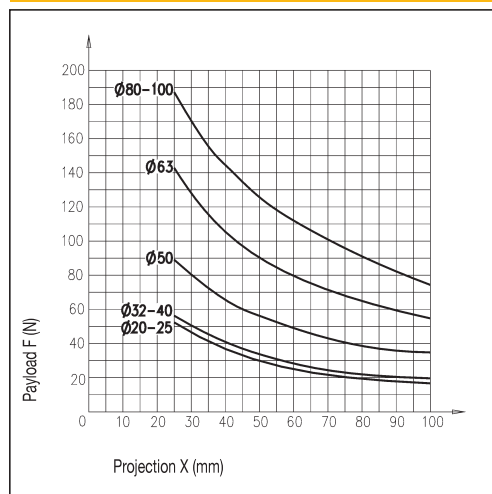


### DIMENSIONS AND WEIGHTS

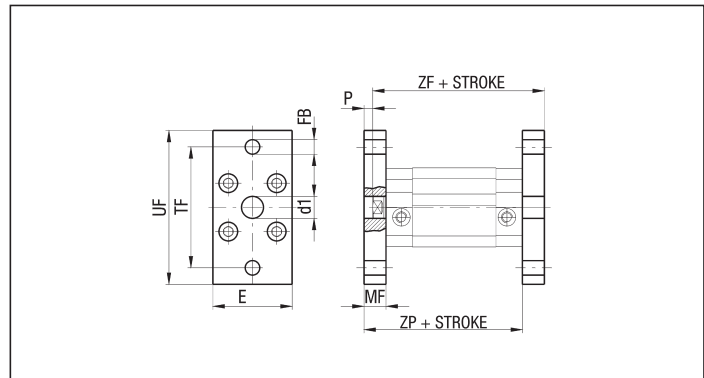
Ø	DA	DB	DC	E	L	L2	L3	TG**		ZA	WEIGHT (g)	INCR. (g) x 5 mm
								A	I			
20	4	M4	6	36	12	14	8	22	-	37	170	15
25	5	M5	6	40	15,6	14	8	26	-	39	210	16
32	5	M5	8	50	19,8	17	10	32	32,5	44	300	25
40	5	M5	8	60	23,3	17	10	42	38	45	440	30
50	6	M6	10	68	29,7	20	12	50	46,5	45	610	40
63	6	M6	10	84	35,4	20	12	62	56,5	50	930	55
80	8	M8	12	102	46	22	14	82	72	56	1690	75
100	10	M10	12	123	56,6	24	14	103	89	67	2950	105

\*\* A - AFNOR  
I - ISO

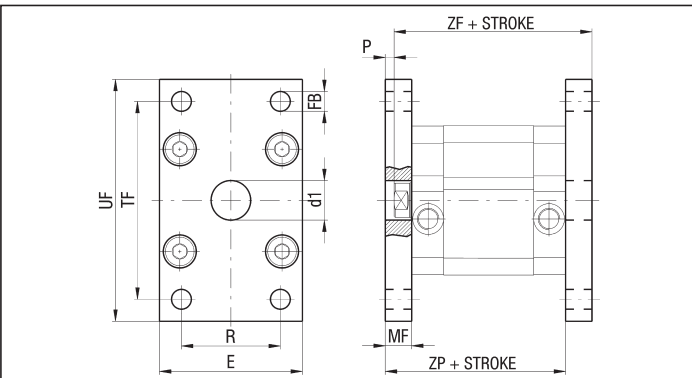
### MAX. PERMISSIBLE LOAD - NON-ROTATING BU



FLANGE Ø 20 - 25 - ALUMINIUM - BU/F Ø  
(Supplied with screws) - STEEL - BU/F Ø AC



FLANGE Ø 32 ÷ 100 - ALUMINIUM - BU/F Ø  
(Supplied with screws) - STEEL - BU/F Ø AC



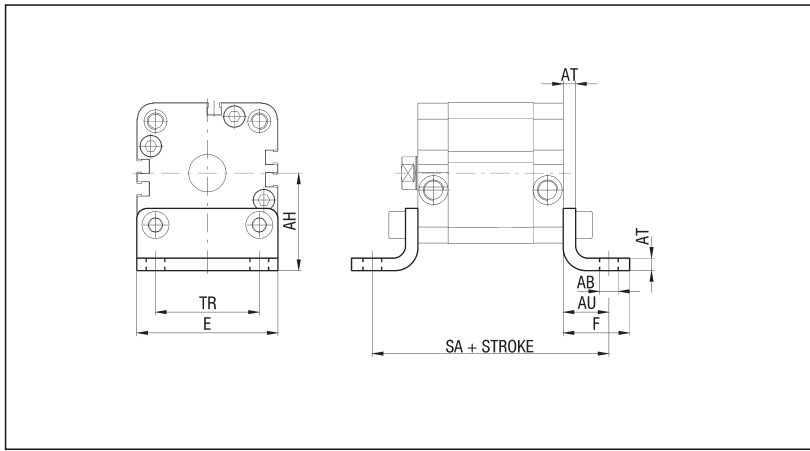
Ø	d1 H11	E	FB H13	MF	P	R	TF	UF	ZF	ZP	WEIGHT ALL. (g)	WEIGHT STEEL (g)
20	12	36	6,6	10	4	-	55	70	53	47	70	160
25	12	40	6,6	10	4	-	60	76	55	49	80	200
32	14	50	7	10	3	32	65	80	61	54	100	260
40	14	60	9	10	3	36	82	102	62	55	160	420
50	18	68	9	12	4	45	90	110	65	57	240	600
63	18	87	9	15	7	50	110	130	73	65	450	1200
80	23	107	12	15	7	63	135	160	79	71	690	1800
100	28	128	14	15	5	75	163	190	92	82	980	2550

IN THE TANDEM VERSIONS (T, P, V),  
ADD THE READING "TANDEM" TO THE CODE.  
EXAMPLE: BU/F Ø TANDEM

LOW FOOT - STEEL - BU/PB Ø

Ø	AB H13	AH	AU	AT	E	F	SA	TR	WEIGHT (g)
20	6,6	27	16	4	36	22	69	22	32
25	6,6	30	16	4	40	22	71	26	38
32	6,6	32	18	5	50	26	80	32	66
40	9	42,5	20	5	60	28	85	42	100
50	9	47	24	6	68	32	93	50	150
63	11	59,5	27	6	84	39	104	62	250
80	11	65,5	30	8	102	42	116	82	380
100	13,5	78,5	33	8	123	45	133	103	500

IN THE TANDEM VERSIONS (T, P, V), ADD THE READING  
"TANDEM" TO THE CODE.  
EXAMPLE: BU/PB Ø TANDEM

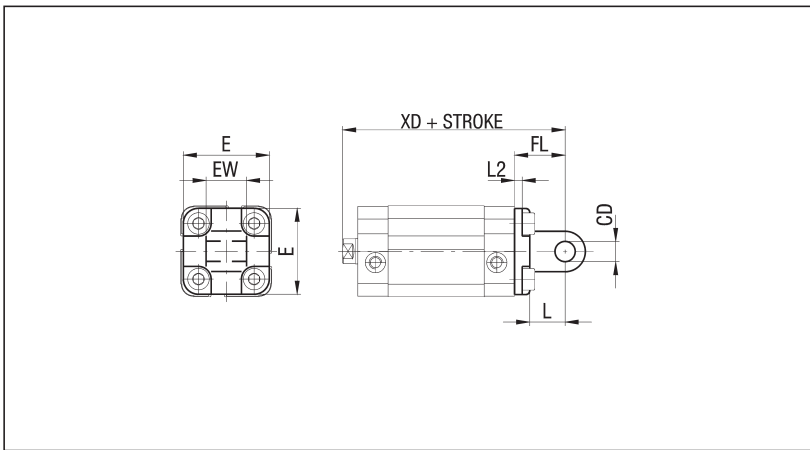


REAR MALE HINGE - ALUMINIUM - BU/CM Ø  
(Supplied with screws) - STEEL - BU/CM Ø AC

Ø	CD H9	E	EW h14	FL	L	L2	XD	WEIGHT ALL. (g)	WEIGHT STEEL (g)
20	8	34	16	20	14	2,6	63	21	80
25	8	38	16	20	14	2,6	65	27	85

P.S.: THIS MOUNTING CAN BE USED WITH THE REAR HINGE  
MOUNTING OF CYLINDERS SERIES "U" (SEE ON PAGE 1.6)

IN THE TANDEM VERSIONS (T, P),  
ADD THE READING "TANDEM" TO THE CODE.  
EXAMPLE: BU/CM Ø AC TANDEM



1

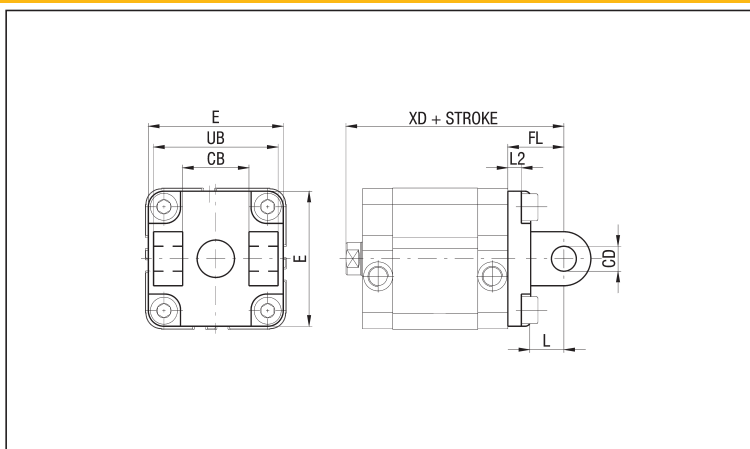
**REAR FEMALE HINGE - ALUMINIUM - BU/CF Ø**  
 (Supplied with screws) - STEEL - BU/CF Ø AC

Ø	CB H14	CD H9	E	FL	L	L2	UB h14	XD	WEIGHT ALL (g)	WEIGHT ACC (g)
32	26	10	48	22	13	5,5	45	73	60	170
40	28	12	58	25	16	5,5	52	77	104	270
50	32	12	66	27	16	6,5	60	80	142	378
63	40	16	83	32	21	6,5	70	90	240	645
80	50	16	102	36	23	10	90	100	420	1070
100	60	20	123	41	26	10	110	118	721	1730

P.S.: THIS HINGE CAN BE USED ALSO WITH PIVOT AND MALE HINGE OR SQUARE JOINT OF SERIES "X" AND "CPU" (SEE FROM PAGE 1.29)

IN THE TANDEM VERSIONS (T, P, V),  
 ADD THE READING "TANDEM" TO THE CODE.

EXAMPLE: BU/CF Ø TANDEM

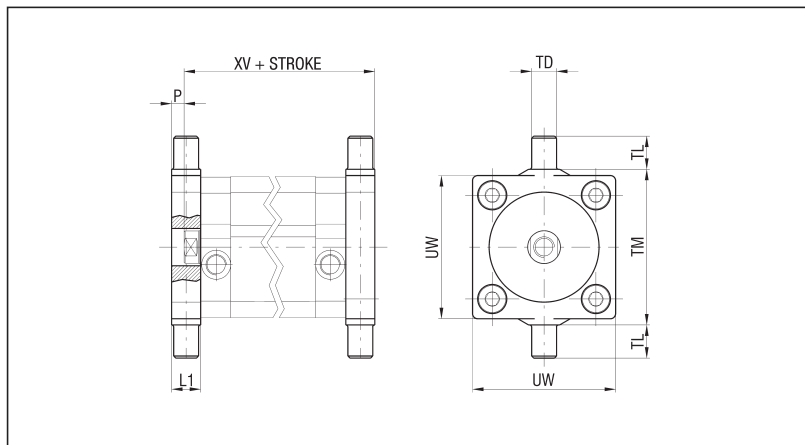


**FLOATING HINGE - STEEL - BU/CTA Ø (Supplied with screws)**

Ø	L1	P	TD e9	TL h14	TM h14	UW	XV	WEIGHT (g)
20	14	8	12	12	38	35	57	100
25	14	8	12	12	42	39	59	114
32	14	7	12	12	52	46	65	132
40	19	12	16	16	63	59	71	278
50	19	11	16	16	75	69	72	362
63	24	16	20	20	90	84	82	624
80	24	16	20	20	110	102	88	765
100	29	19	25	25	132	125	106	1464

IN THE TANDEM VERSIONS (T, P, V),  
 ADD THE READING "TANDEM" TO THE CODE.

EXAMPLE: BU/CTA Ø TANDEM



**ACCESSORIES FOR CYLINDERS WITH END CAPS DISTANCE BETWEEN CENTERS TO ISO 15552 STANDARD**

The accessories of Version No. 3 (end caps distance between centers to ISO standard) are the same of the cylinders series "X" and "CPU" to ISO 15552 standard (see from page 1.28)