microlinea® - serie ED

Miniature ball screws high-precision
automation, medical instrumentation, military and defense industry, space industry

	Nut			Screw					Axial load rating	
Reference	D [mm]	B [mm]	Øballs [mm]	d1 [mm]	P [mm]	d2 [mm]	L [mm]	L1 [mm]	dyn Ca [N]	stat Coa [N]
ED 410X V404X	10	10	0.794	4.25	1.0	3	70	50	439	178
ED 513X V501X	13	12	1.000	5.8	1.25	4	100	75	671	299
ED 616X V601X	16	14	1.191	7.4	1.5	6	140	110	968	471
ED 822X V801X	22	18	1.588	10.5	2.0	8	190	150	1659	879
ED 1028X V1001X	28	22	2.000	13.6	2.5	10	260	210	2544	1396

Example of part number definition:

ED 513X/V501X ball nut. (EDD = two ball nuts)
ED 513X/V501X 4 x pitch of ball nut thread
ED 513X/V501X outer diameter of ball nut
ED 513X/V501X ball nut in stainless steel material
ED 513X/V501X ground precision screw
ED 513X/V501X 4 x pitch of screw thread
ED 513X/V501X screw drawing number
ED 513X/V501X screw in stainless steel material

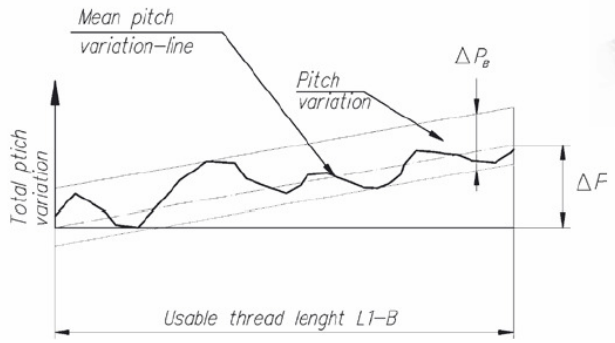
Housing stainless steel AISI 440C
Ball nuts ED/ES stainless steel AISI 440C
Shields stainless steel AISI 302 or AISI 303
Balls stainless steel AISI 440C
Lubrication Standard: L23ar

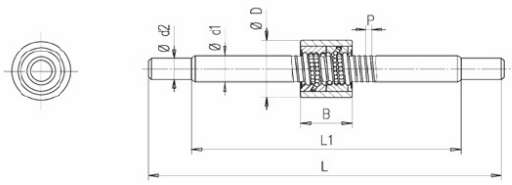
(rust protection; i.e. dipped in oil)
oil, greases or dry lubrication on request

Special The maximum length of a special screw will not exceed 1.5x the length of a standard screw. Nevertheless, each case must be examined individually.
Temperature -40° and +80°C or more with the appropriate lubricant

Left hand thread ball screws with left hand thread are available upon request

Typical pitch variation





Technical data		ED 410X V404X	ED 513X V501X	ED 616X V601X	ED 822X V801X	ED 1028X V1001X
Tolerance of outside diamter of nut	µm	0 / -6	0 / -6	0 / -6	0 / -9	0 / -9
Tolerance of the bearing shaft diameter	d2 / µm	0 / -8	0 / -8	0 / -8	0 / -8	0 / -8
max. pitch variation per L1*	rPL1 / µm	5	5	5	5	5
max. band with	rPB / µm	5	5	5	5	5
max. eccentricity of the nut on the screw	µm	10	10	12	14	16
Average efficiency	%	80-85	80-87	80-89	81-91	83-92
Standard axial play	µm	0-5	0-5	0-5	0-5	0-5
Zero backlash	on request					

* Above are standard specifications. The precision can be increased on request. Special executions are available on request.
Note: The nut must not be removed from the shaft.
Material: Stainless steel

Ball screws calculations – general formulas
The theoretical life expectancy is generally expressed by the total number of revolutions. The total rotation in hours or total travel distance may also be used to express life. The fatigue life is calculated as follows:

$$L = \left(\frac{C}{Fm}\right)^3 \cdot 10^6 \qquad Lh = \frac{L}{nm \cdot 60}$$

L Life expectancy in revolutions [min-1]
Lh Life expectancy in hours [h]
C Dynamic load rating [N]
Fm Axial load (N)
nm Rotating speed [min-1]

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