microlinea® - serie ED

Automation, medical instrumentation, defense and space industry

	Nut			Screw					Axial load rating	
Reference	D [mm]	B [mm]	Øballs [mm]	d_1 [mm]	P [mm]	d_2 [mm]	L [mm]	L_1 [mm]	dyn C_a	stat C_{oa}
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

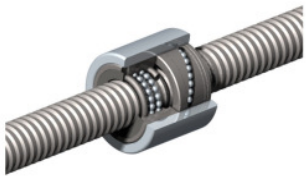
Example of part number definition

ED 513X/V501X double ball nut
EDD 513X/V501X two double 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
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

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)

Special requirements:

- lubricant: oil, grease, dry lubrication
- machined ends
- higher static load capacity
- multiple nuts
- left hand threaded ball screws
- length: The maximum length of a customized ball screw is 1.5 x the overall length of a standard screw. Nevertheless, each case must be examined individually.



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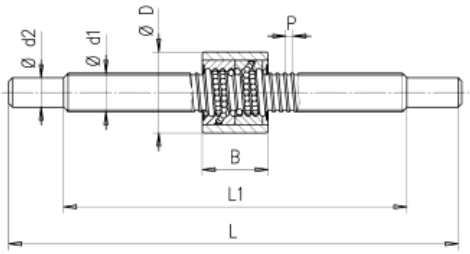

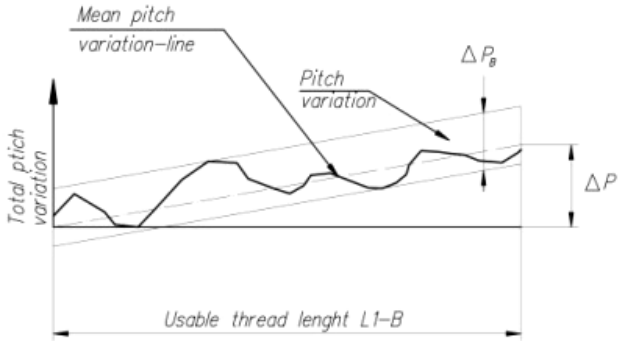

Technical data		ED 410X V404X	ED 513X V501X	ED 616X V601X	ED 822X V801X	ED 1028X V1001X
Tolerance of outer diamter of nut	µm	0 / -6	0 / -6	0 / -6	0 / -9	0 / -9
Tolerance of the bearing shaft diameter	d_2 / µm	0 / -8	0 / -8	0 / -8	0 / -8	0 / -8
Max. pitch variation per L_1*	rPL1 / µm	5	5	5	5	5
Max. band 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					

* Standard specification. The precision can be increased on request. Special executions are available on request.

Note: Do not remove the nut from the shaft.

Ball screw calculations – general formulas

The theoretical life expectancy is generally expressed by the total number of revolutions. The life expectancy can also be expressed in hours or in total travel distance. The fatigue life is calculated as follows:

- L Life expectancy in millions of revolutions [rev]
- L_h Life expectancy in hours [h]
- C_a Axial dynamic load rating [N]
- F_m Mean axial load (N)
- n_m Mean rotational speed [min^{-1}]

$$L = \left(\frac{C_a}{F_m}\right)^3 \cdot 10^6 \qquad L_h = \frac{L}{n_m \cdot 60}$$

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