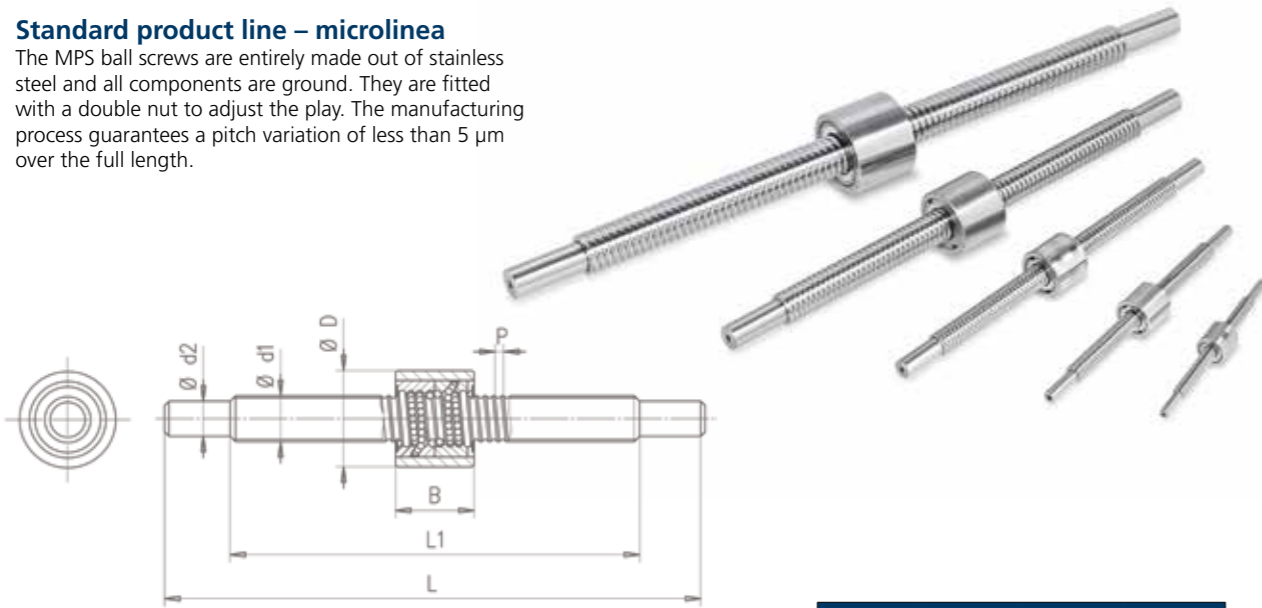


Ball screws

Standard product line – microlinea

The MPS ball screws are entirely made out of stainless steel and all components are ground. They are fitted with a double nut to adjust the play. The manufacturing process guarantees a pitch variation of less than 5 µm over the full length.



Reference	Nut		Screw						Axial load rating ISO3408-5 (N)			
	D (mm)	B (mm)	Ø balls (mm)	d1 (mm)	P (mm)	d ₂ (mm)	L (mm)	L ₁ (mm)	Standard profile		High load profile	
									dyn. (Cam)	stat. (Coa)	dyn. (Cam)	stat. (Coa)
ED 410X / V404X	10	10	0.794	4.25	1.0	3	70	50	229	179	426	422
ED 513X / V501X	13	12	1.000	5.8	1.25	4	100	75	356	302	660	709
ED 616X / V601X	16	14	1.191	7.4	1.5	6	140	110	519	475	958	1114
ED 822X / V801X	22	18	1.588	10.5	2.0	8	190	150	890	887	1646	2085
ED 1028X / V1001X	28	22	2.000	13.6	2.5	10	260	210	1345	1409	2497	3313

Materials

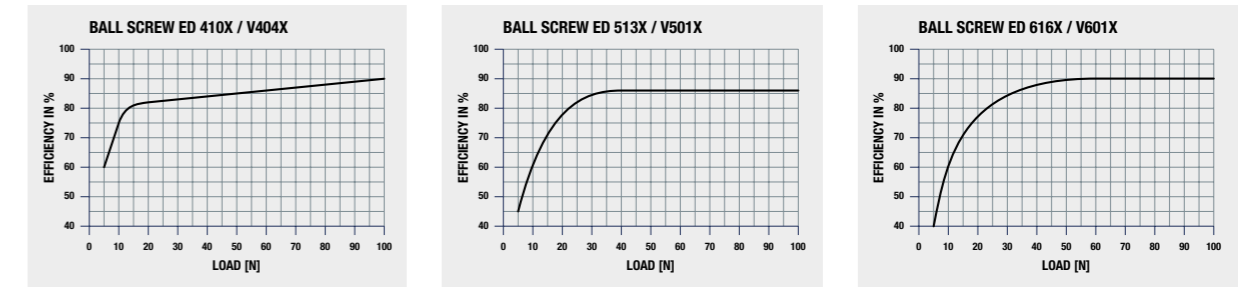
- Housing:** stainless steel AISI 440C
- Ball nuts ED/ES:** stainless steel AISI 440C
- Shields:** stainless steel AISI 302 or AISI 303
- Balls:** stainless steel AISI 440C
- Lubrication:** standard: Winsor Lube L245X

Example of part number definition

- ED 513X/V501X** double nut
- EDD 513X/V501X** two double nuts
- ED 513X/V501X** 4 x lead of nut thread
- ED 513X/V501X** outer diameter of nut
- ED 513X/V501X** nut in stainless steel
- ED 513X/V501X** ground precision screw
- ED 513X/V501X** 4 x lead of screw thread
- ED 513X/V501X** screw drawing number
- ED 513X/V501X** screw in stainless steel

Data subject to change without notice.

Starting efficiency (Useful information for dimensioning the system)



Technical Data		ED 410X / V404X	ED 513X / V501X	ED 616X / V601X	ED 822X / V801X	ED 1028X / V1001X
Tolerance of nut outer diameter	D [µm]	0/-6	0/-6	0/-6	0/-9	0/-9
Tolerance of screw end diameters	d ₂ [µm]	0/-8	0/-8	0/-8	0/-8	0/-8
Max. pitch variation over total leadscrew length*	[µm]	5	5	5	5	5
Max. eccentricity nut/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. 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_m : Life expectancy in number of millions of revolutions [rev]
 - L_{hm} : Life expectancy in hours [h]
 - C_{am} : Equivalent axial dynamic load rating [N]
 - F_m : Equivalent axial load [N], to ISO 3408-5
 - n_m : Equivalent rotating speed [min⁻¹], to ISO 3408-5
- $$L_m = \left(\frac{C_{am}}{F_m} \right)^3 \cdot 10^6$$
- $$L_{hm} = \frac{L_m}{n_m \cdot 60}$$

Data subject to change without notice.