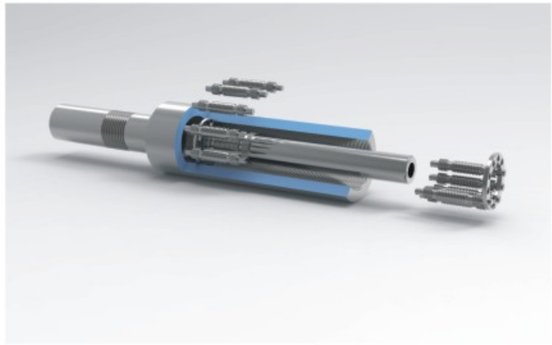
PLI series Planetary Roller Screw

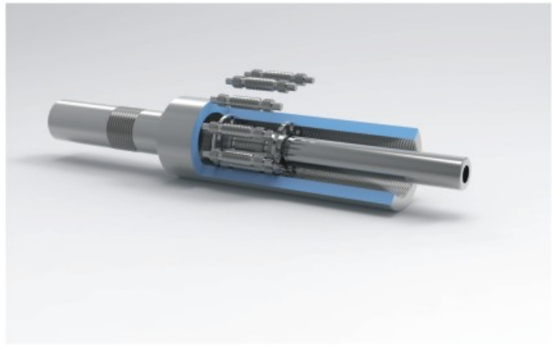


The design principle and parameter performance of PLI reverse Planetary Roller Screw are the same as PL series, but the rollers move axially within the length of the nut instead of moving axially along the screw.

The gear is designed to be between the roller and the screw axis, and can provide more smooth and reliable synchronized rotary movement. The length of nut will be greater than the actual lead customer needs, and is much greater than the length of PL series nuts. Therefore, PLI series will be limited in terms of the length of journey.

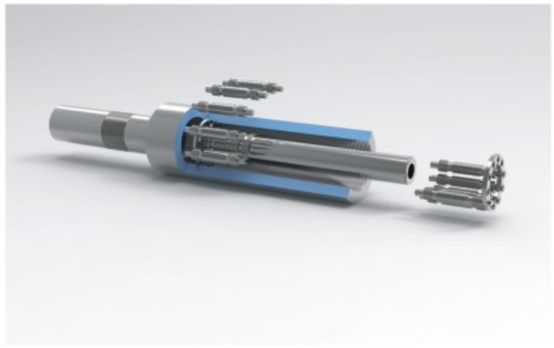
This design concept follows specific design rules and achieves higher rated load bearing through relatively small lead so as to reduce the driving torque.

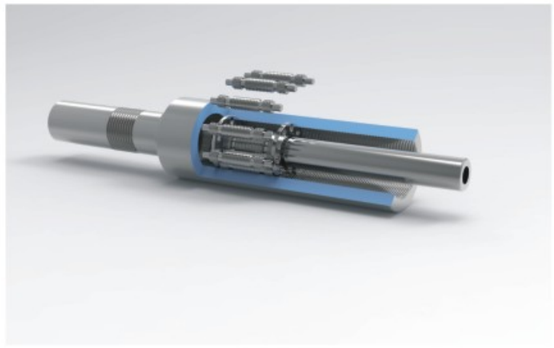




Planetary Roller Screws-PLI Series(Scandent)

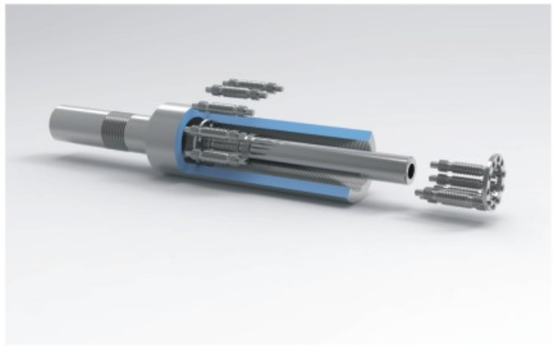
	Model			PLI																			
	Nominal diameter	D	mm	12		15			18			21			24				27				
	Lead	P	mm	1	2	1	2	3	1	2	3	2	3	4	2	3	4	5	2	3	4	5
	Number of starts of thread	N		3		3			3			3			3				3				
	Lead angle		°	1.52	3.04	1.22	2.43	3.64	1.01	2.03	3.04	1.74	2.6	3.47	1.52	2.28	3.04	3.79	1.35	2.03	2.7	3.37
	Rated dynamic load	Ca	kN	13.8	16.4	23.6	27.6	29	30.5	36.1	39	54.4	59.5	63.2	73.7	81.3	87.2	92	81.1	90.2	94.7	99.9
	Rated dead load	Coa	kN	26.7	27	55.9	55.1	51.4	76.7	77.1	74.8	105.9	104.7	103.6	160.9	161.4	161.9	162.4	177.1	179.6	174.2	174.7
	Stiffness coefficient	Fk	N2/3um	52	36.4	74	50.9	39.3	85	58.9	46.8	67.4	54.1	46.4	81.1	65.9	56.7	50.8	83.9	68.5	57.9	51.7
	Axial clearance	*	mm	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.03	0.02	0.03	0.03	0.02	0.03	0.03	0.03	0.02	0.03	0.03	0.03
	Forward efficiency			0.77	0.85	0.73	0.83	0.86	0.7	0.81	0.85	0.79	0.83	0.86	0.77	0.82	0.85	0.86	0.75	0.81	0.84	0.85
	Inversion efficiency			0.7	0.82	0.64	0.79	0.84	0.57	0.76	0.82	0.73	0.8	0.84	0.7	0.78	0.82	0.84	0.67	0.76	0.81	0.83
Roller Screws	Roller screws external diameter	d1	mm	12.1	12.19	15.1	15.2	15.28	18.11	18.21	18.29	21.21	21.3	21.38	24.21	24.31	24.39	24.47	27.22	27.32	27.4	27.48
	Nominal diameter	d0	mm	12		15			18			21			24				27				
	Roller screws Root diameter	d2	mm	11.83	11.65	14.83	14.66	14.47	17.84	17.67	17.48	20.67	20.49	20.3	23.67	23.5	23.31	23.12	26.68	26.51	26.32	26.13
Nut	Nut nominal diameter	d_{00}	mm	20		25			30			35			40				45				
	Min.external diameter	D1	mm	26		32			38			45			50				55				

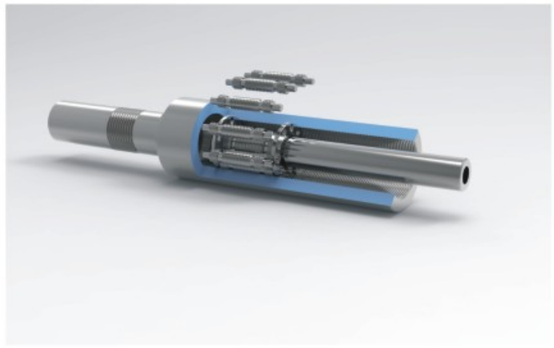




Planetary Roller Screws-PLI Series(Scandent)

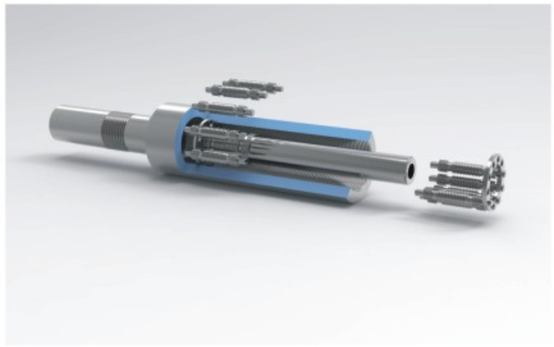
	Model			PLI															
	Nominal diameter	D	mm	30					36						39				
	Lead	P	mm	2	3	4	5	6	2	3	4	5	6	7	3	4	5	6	7	8
	Number of starts of thread	N		3					4						3					
	Lead angle		°	1.22	1.82	2.43	3.04	3.64	1.01	1.52	2.03	2.53	3.04	3.54	1.4	1.87	2.34	2.8	3.27	3.74
	Rated dynamic load	Ca	kN	97.1	107.2	113.5	119.1	126.8	86.8	95.3	101.7	106.1	110.9	117.7	159.4	170.2	178.8	186	194	201.3
	Rated dead load	Coa	kN	224	224.6	220.7	219.1	226.4	215.3	213.9	212.5	209.1	209.7	218	371.9	369.8	367.7	365.6	369.3	373
	Stiffness coefficient	Fk	N2/3um	93.3	75.4	64.2	56.9	52.8	111.6	89.2	76.6	67.6	61.6	57.9	93.1	80.2	71.1	64.4	59.7	56.2
	Axial clearance	*	mm	0.02	0.03	0.03	0.03	0.04	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04
	Forward efficiency			0.73	0.79	0.83	0.85	0.86	0.7	0.77	0.81	0.83	0.85	0.86	0.75	0.8	0.82	0.84	0.85	0.86
	Inversion efficiency			0.64	0.74	0.79	0.82	0.84	0.57	0.7	0.76	0.8	0.82	0.84	0.68	0.75	0.79	0.81	0.83	0.84
Roller Screws	Roller screws external diameter	d1	mm	30.22	30.32	30.41	30.49	30.57	36.17	36.25	36.33	36.4	36.47	36.53	39.33	39.43	39.52	39.61	39.68	39.76
	Nominal diameter	d0	mm	30					36						39					
	Roller screws Root diameter	d2	mm	29.68	29.51	29.33	29.14	28.95	35.76	35.64	35.52	35.39	35.25	35.12	38.52	38.35	38.17	37.99	37.79	37.6
Nut	Nut nominal diameter	d_{00}	mm	50					54						65					
	Min.external diameter	D1	mm	60					64						75					

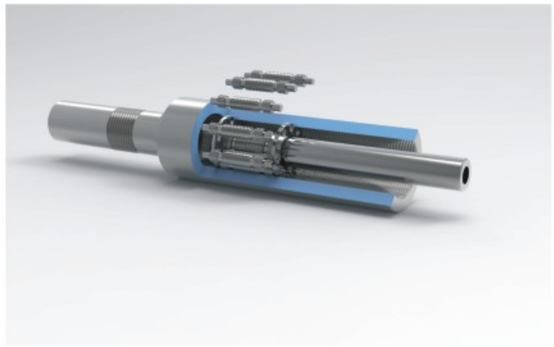




Planetary Roller Screws-PLI Series(Scandent)

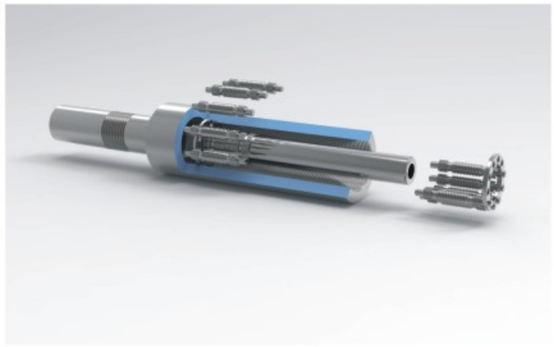
	Model			PLI																					
	Nominal diameter	D	mm	44							48							51							
	Lead	P	mm	3	4	5	6	7	8	9	3	4	5	6	7	8	9	10	3	4	5	6			
	Number of starts of thread	N		4							3								3						
	Lead angle		°	1.24	1.66	2.07	2.49	2.9	3.31	3.73	1.14	1.52	1.9	2.28	2.66	3.04	3.42	3.79	1.07	1.43	1.79	2.14			
	Rated dynamic load	Ca	kN	135	145.5	153	157.8	166.7	169.1	171.7	218.6	234.5	246.7	258.9	262.3	277.6	285.6	285.9	263	279.4	298	308.4			
	Rated dead load	Coa	kN	338.3	341.4	339.7	333.1	343.5	334.5	327.9	556.1	557.1	554.5	559	538.6	561	562	541.6	725.8	715.1	727.8	717.2			
	Stiffness coefficient	Fk	N2/3um	109.2	94.1	83.6	75.2	70.5	64.9	60.5	111.5	95.3	84.9	77.4	70	66.6	62.8	58.5	126.2	106.5	96.1	86.8			
	Axial clearance	*	mm	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.05	0.03	0.03	0.03	0.04			
	Forward efficiency			0.73	0.78	0.81	0.83	0.84	0.85	0.86	0.72	0.77	0.8	0.82	0.83	0.85	0.86	0.86	0.71	0.76	0.79	0.81			
	Inversion efficiency			0.64	0.72	0.77	0.8	0.82	0.83	0.84	0.62	0.7	0.75	0.78	0.81	0.82	0.83	0.84	0.59	0.69	0.74	0.77			
Roller Screws	Roller screws external diameter	d1	mm	44.25	44.33	44.41	44.48	44.55	44.62	44.68	48.33	48.44	48.54	48.63	48.72	48.8	48.87	48.94	51.34	51.44	51.54	51.63			
	Nominal diameter	d0	mm	44							48								51						
	Roller screws Root diameter	d2	mm	43.64	43.52	43.4	43.27	43.14	43	42.86	47.52	47.36	47.19	47.01	46.83	46.64	46.44	46.24	50.53	50.36	50.19	50.01			
Nut	Nut nominal diameter	d_{00}	mm	66							80								85						
	Min.external diameter	D1	mm	76							90								89						

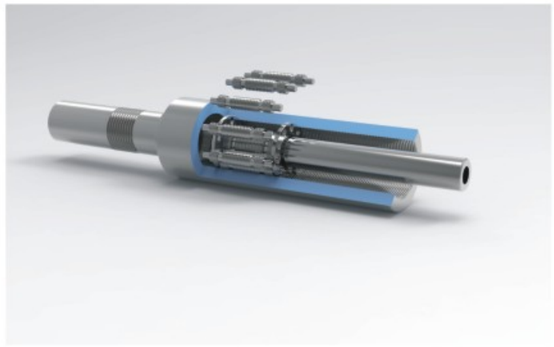




Planetary Roller Screws-PLI Series(Scandent)

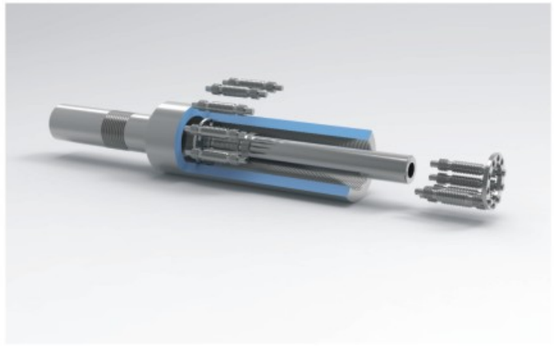
	Model			PLI																	
	Nominal diameter	D	mm	51				56								60					
	Lead	P	mm	7	8	9	10	4	5	6	7	8	9	10	12	5	6	7	8	9	10	12
	Number of starts of thread	N		3				4								4						
	Lead angle		°	2.5	2.86	3.22	3.57	1.3	1.63	1.95	2.28	2.6	2.93	3.25	3.9	1.52	1.82	2.13	2.43	2.73	3.04	3.64
	Rated dynamic load	Ca	kN	320.1	326.1	340.2	346.5	219.5	231.8	240.7	250.7	256.4	260.3	274.3	278.9	259.2	272.6	281.3	290.6	298.1	306.8	316.6
	Rated dead load	Coa	kN	718.2	703.8	720.3	713.6	584.8	585.7	580.3	584.3	575.8	564.3	589.9	566.8	676.8	684.4	678.6	679.6	677.1	681.4	669.8
	Stiffness coefficient	Fk	N2/3um	79.9	73.9	70.2	66.4	118.9	105.8	95.9	88.7	82.1	76.5	74	66.1	112.6	103	94.7	88.2	82.9	78.8	71.1
	Axial clearance	*	mm	0.04	0.04	0.05	0.05	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.05	0.03	0.03	0.03	0.04	0.04	0.04	0.05
	Forward efficiency			0.83	0.84	0.85	0.86	0.74	0.78	0.8	0.82	0.83	0.84	0.85	0.86	0.77	0.79	0.81	0.83	0.84	0.85	0.86
	Inversion efficiency			0.8	0.82	0.83	0.84	0.66	0.72	0.76	0.78	0.8	0.82	0.83	0.85	0.7	0.74	0.77	0.79	0.81	0.82	0.84
Roller Screws	Roller screws external diameter	d1	mm	51.72	51.81	51.89	51.96	56.34	56.42	56.5	56.57	56.64	56.71	56.78	56.91	60.42	60.5	60.58	60.65	60.72	60.79	60.92
	Nominal diameter	d0	mm	51				56								60						
	Roller screws Root diameter	d2	mm	49.83	49.65	49.46	49.26	55.53	55.41	55.28	55.15	55.02	54.89	54.75	54.48	59.41	59.28	59.16	59.03	58.9	58.76	58.49
Nut	Nut nominal diameter	d_{00}	mm	85				84								90						
	Min.external diameter	D1	mm	99				98								108						

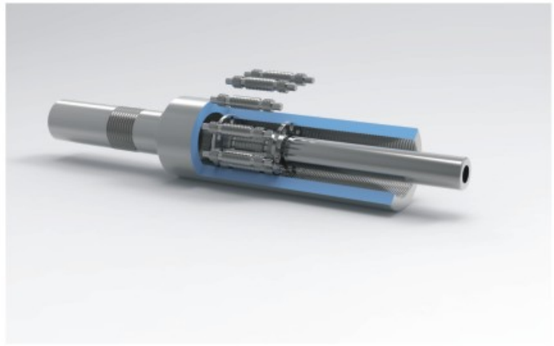


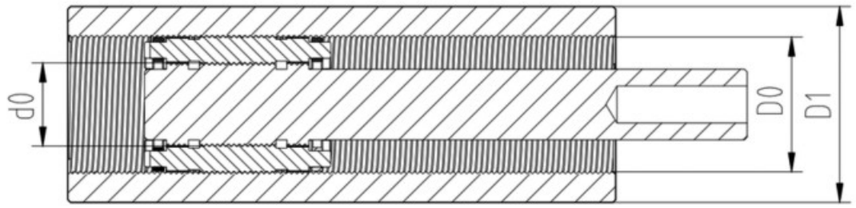


Planetary Roller Screws-PLI Series(Scandent)

	Model			PLI																	
	Nominal diameter	D	mm	64												70					
	Lead	P	mm	4	5	6	7	8	9	10	12	14	6	8	10	12	14	15			
	Number of starts of thread	N		4									5								
	Lead angle		°	1.14	1.42	1.71	1.99	2.28	2.56	2.85	3.42	3.98	1.56	2.08	2.6	3.12	3.64	3.9			
	Rated dynamic load	Ca	kN	278.6	291.8	305.9	319.4	326.3	337.7	340.5	355.8	377.7	260.2	276.1	291.5	307.9	317.8	317.1			
	Rated dead load	Coa	kN	802.1	792.3	796.9	805	791.7	799.8	779.4	781.3	811.7	722.6	712	713.7	727.7	723.2	702.5			
	Stiffness coefficient	Fk	N2/3um	137.2	120.8	110	102.1	94.4	89.2	83.4	75.9	71.6	123	105.1	93.7	86	79.1	75.3			
	Axial clearance	*	mm	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.02	0.03	0.04	0.04	0.04	0.05			
	Forward efficiency			0.72	0.76	0.78	0.8	0.82	0.83	0.84	0.86	0.87	0.77	0.81	0.83	0.85	0.86	0.86			
	Inversion efficiency			0.62	0.68	0.73	0.76	0.78	0.8	0.82	0.83	0.85	0.71	0.77	0.8	0.83	0.84	0.85			
Roller Screws	Roller screws external diameter	d1	mm	64.34	64.42	64.5	64.58	64.65	64.73	64.8	64.93	65.05	70.41	70.53	70.65	70.77	70.88	70.93			
	Nominal diameter	d0	mm	64									70								
	Roller screws Root diameter	d2	mm	63.53	63.41	63.29	63.16	63.03	62.9	62.77	62.5	62.22	69.43	69.24	69.03	68.82	68.61	68.5			
Nut	Nut nominal diameter	d_{00}	mm	96									98								
	Min.external diameter	D1	mm	114									120								







Planetary Roller Screws-PLI Series(Scandent)

	Model			PLI											
	Nominal diameter	D	mm	75						80					
	Lead	P	mm	6	8	10	12	14	15	6	8	10	12	14	16
	Number of starts of thread	N		5						4					
	Lead angle		°	1.46	1.94	2.43	2.92	3.4	3.64	1.37	1.82	2.28	2.73	3.19	3.64
	Rated dynamic load	Ca	kN	294.6	314.5	330.4	343.6	358.4	359.9	387.3	415.5	443.1	458.5	475.9	559.3
	Rated dead load	Coa	kN	851.8	847	842.2	837.4	845.8	830.2	1038.3	1040.8	1060.7	1045.7	1048.2	1225.7
	Stiffness coefficient	Fk	N2/3um	132.3	113.4	100.6	91.4	84.6	80.9	121.8	105.2	94.4	85.3	78.8	75.6
	Axial clearance	*	mm	0.03	0.03	0.04	0.04	0.04	0.05	0.03	0.04	0.04	0.05	0.05	0.05
	Forward efficiency			0.76	0.8	0.83	0.84	0.86	0.86	0.75	0.79	0.82	0.84	0.85	0.86
	Inversion efficiency			0.69	0.76	0.79	0.82	0.83	0.84	0.67	0.74	0.78	0.81	0.83	0.84
Roller Screws	Roller screws external diameter	d1	mm	75.41	75.54	75.66	75.77	75.89	75.94	80.51	80.67	80.82	80.96	81.1	81.23
	Nominal diameter	d0	mm	75						80					
	Roller screws Root diameter	d2	mm	74.44	74.24	74.04	73.83	73.62	73.51	79.3	79.05	78.8	78.53	78.26	77.99
Nut	Nut nominal diameter	d_{00}	mm	105						120					
	Min.external diameter	D1	mm	127						142					

			Roller Screw			Nut	
Model	D	P	d1	d0	d2	D0	D1
	mm	mm	mm	mm	mm	mm	mm
PLI	12	1	12.1	12	11.8	20	26
		2	12.2		11.7		
	15	1	15.1	15	14.8	25	32
		2	15.2		14.7		
		3	15.3		14.5		
	18	1	18.1	18	17.8	30	38
		2	18.2		17.7		
		3	18.3		17.5		
	21	2	21.2	21	20.7	35	45
		3	21.3		20.5		
		4	21.4		20.3		
	24	2	24.2	24	23.7	40	50
		3	24.3		23.5		
		4	24.4		23.3		
		5	24.5		23.1		
	27	2	27.2	27	26.7	45	55
		3	27.3		26.5		
		4	27.4		26.3		
		5	27.5		26.1		
	30	2	30.2	30	29.7	50	60
		3	30.3		29.5		
		4	30.4		29.3		
		5	30.5		29.1		
		6	30.6		29.0		
	36	2	36.2	36	35.8	54	64
		3	36.3		35.6		
		4	36.3		35.5		
		5	36.4		35.4		
		6	36.5		35.3		
		7	36.5		35.1		
	39	3	39.3	39	38.5	65	75
		4	39.4		38.4		
		5	39.5		38.2		
		6	39.6		38.0		
		7	39.7		37.8		
		8	39.8		37.6		

			Roller Screw			Nut	
Model	D	P	d1	d0	d2	D0	D1
	mm	mm	mm	mm	mm	mm	mm
PLI	44	3	44.3	44	43.7	66	76
		4	44.3		43.5		
		5	44.4		43.4		
		6	44.5		43.3		
		7	44.6		43.2		
		8	44.6		43.0		
		9	44.7		42.9		
	48	3	48.3	48	47.5	80	90
		4	48.5		47.4		
		5	48.6		47.2		
		6	48.6		47.0		
		7	48.7		46.8		
		8	48.8		46.7		
		9	48.9		46.5		
		10	49.0		46.3		
	51	3	51.4	51	50.5	85	89
		4	51.5		50.4		
		5	51.6		50.2		
		6	51.6		50.0		
		7	51.7		49.8		
		8	51.8		49.7		
		9	51.9		49.5		
		10	52.0		49.3		
	56	4	56.4	56	55.5	84	98
		5	56.4		55.4		
		6	56.5		55.3		
		7	56.6		55.2		
		8	56.7		55.0		
		9	56.7		54.9		
		10	56.8		54.8		
		12	56.9		54.5		

Technical Memo

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