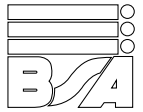
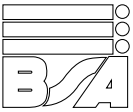


# LEAD SCREWS



## “ACME” STYLE ROLLED THREAD 3/16” TO 1/2” DIAMETER

NOMINAL MAJOR DIAMETER	LEAD	PRECISION PREFIX	STANDARD PREFIX	BS&A PART NO.	AVAIL IN LEFT HAND	MATERIAL	ROOT DIAMETER	RECOMMENDED BEARING SEE PAGE 4-1.	
3/16"	0.050	SPR	SRA	1820	L	Stainless Steel	0.12	N/A	
1/4"	0.050	SPR	SRA	2520	L	Stainless Steel	0.19	4 mm	
	0.063			2516	L		0.17		
	0.250			4-2516			0.17		
	0.500	N/A		7-2514			0.16		
5/16"	0.083	SPR	SRA	3112	L	Stainless Steel	0.22	4 mm	
	0.167			2-3112			0.20		
	0.250			2-3108S			0.22		
	0.500			4-3108S			0.21		
3/8"	0.0625	SPR	SRA	3716	L	Stainless Steel	0.30	4mm	
	2mm			37x2M	L		0.28		
	0.083			3712	L		0.28		
	0.100			3710	L		0.26		
	0.125			3708S	L		0.29		
	0.167			2-3712S			0.31		
	0.200			2-3710			0.26		
	0.250			2-3708S	L		0.29		
	0.375			4-3711	L		0.27		
	0.500			4-3708S	L		0.27		
	1.00	N/A		5-3705			0.24		
	1.20			5-3704			0.24		
10mm	2mm	SPT	SRT	10x2M	L	Stainless Steel	0.31	4mm	
	3mm			10x3M			0.27		
	6mm	SPR	SRA	4-10x1.5M			0.31		
	20mm			6-10x3.3M			0.30		
7/16"	0.125	SPR	SRA	2-4316		Stainless Steel	0.35	6mm	
	0.250			2-4308S			0.36		
	0.500			4-4308S			0.33		
12mm	5mm	SPT	SRT	2-12x2.5M		Stainless Steel	0.35	6mm	
	10mm			4-12x2.5M			0.35		
1/2"	0.0625	SPR	SRA	5016	L	Stainless Steel	0.41	6mm	
	0.100			5010					0.37
	0.200			2-5010					0.39
	0.250			2-5008					0.38
	0.500			4-5008					0.36
	0.800	N/A		8-5010			0.37		
	1.000			8-5008			0.39		



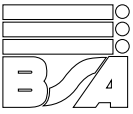
# LEAD SCREWS



## “ACME” STYLE ROLLED THREAD 5/8” TO 3” DIAMETER

NOMINAL MAJOR DIAMETER	LEAD	PRECISION PREFIX	STANDARD PREFIX	BS&A PART NO.	AVAIL IN LEFT HAND	MATERIAL	ROOT DIAMETER	RECOMMENDED BEARING SEE PAGE 4-1.
5/8"	0.100	SPR	SRA	6210	L	Stainless Steel	0.52	8mm
	0.125			6208S	L		0.52	
	4mm	N/A		62 x 4MS	L		0.52	
	0.200	SPR		2-6210			0.52	
	0.250			2-6208S			0.52	
	0.500			4-6208			0.48	
16mm	4mm	N/A	SRT	16 x 4M	L	Stainless Steel	0.45	8mm
3/4"	0.100	SPR	SRA	7510	L	Stainless Steel	0.63	12mm
	0.125			7508	L		0.61	
	0.167			7506	L		0.56	
	0.200			7505	L		0.53	
	0.500	N/A		5-7510			0.62	
	1.000			8-7508			0.61	
	2.000			10-7505†	L		0.59	
20mm	4mm	SPT	SRT	20 x 4M	L	Stainless Steel	0.61	12mm
24mm	5mm	SPT	SRT	24 x 5M	L	Stainless Steel	0.73	12mm
1"	0.100	SPR	SRA	1010	L	Stainless Steel	0.88	12 to 20mm
	0.125	N/A		1008	L		0.86	12 to 20mm
	0.200	SPR		1005	L		0.78	12mm
	0.250	N/A		1004	L	Carbon Steel	0.72	12mm
	0.500			5-1010		Stainless Steel	0.88	12 to 20mm
	1.000			10-1010			0.88	12 to 20mm
1 1/4"	0.200	N/A	RA	1205	L	Low Carbon Steel	1.03	20mm
	0.250			1204	L		0.98	
1 1/2"	0.200	N/A	RA	1505	L	Low Carbon Steel	1.28	25mm
	0.250			1504	L		1.23	
	0.375			1503			1.11	
	0.500			2-1504			1.23	
2"	0.250	N/A	RA	2004	L	Low Carbon Steel	1.73	*
2 1/4"	0.250	N/A	RA	2204	L		1.98	*
2 1/2"	0.250	N/A	RA	2504	L		2.23	*
2 3/4"	0.250	N/A	RA	2704	L		2.48	*
3"	0.250	N/A	RA	3004	L		2.73	*

† Nominal O.D. is .734"



# PRECISION LEAD SCREWS & SUPERNUTS™



## FEATURES/ADVANTAGES

### LOW COST

Considerable savings when compared to ball screw assemblies.

### VARIETY

Largest range of leads and diameters 3/16" to 4" to match your requirements.

### LUBRICATION

Internally lubricated plastic nuts will operate without lubrication. However, additional lubrication or PTFE coating of the screw is recommended. See page 8-4.

### VIBRATION AND NOISE

No ball recirculating vibration and often less audible noise compared to ball screws.

### CUSTOM

Option of custom designs to fit into your design envelope.

### NON-CORROSIVE\*

Stainless Steel and internally lubricated Acetal.

### ENVIRONMENT

Less susceptible to particulate contamination compared to ball screws.

### LIGHTWEIGHT

Less mass to move.

## DESIGN CONSIDERATIONS

### LOAD

Supernuts provide a cost effective solution for moderate to light loads. For vertical applications, anti backlash supernuts should be mounted with thread/flange on the bottom.

### CANTILEVERED LOADS

Cantilevered loads that might cause a moment on the nut will cause premature failure. Refer to Precision Linear Rails for our complete line-up of linear guides or our stage selection in **Section 4**, **Section 5** and **Section 6** for a complete linear motion solution.

### COLUMN LOADING

Refer to column loading chart on page 9-3.

### CRITICAL SPEED

Refer to critical speed chart on page 9-2.

### SELF-LOCKING

Lead screws can be self locking at low leads. Generally, the lead of the screw should be more than 1/3 of the diameter to satisfactorily backdrive.

### TEMPERATURE

Ambient and friction generated heat are the primary causes of premature plastic nut failure. Observe the temperature limits below and discuss your design with our application engineers for continuous duty, high load and high speed applications. BS&A recommends bronze nuts for very high temperature environments or can aid in your selection of high temperature plastic for a custom assembly.

### EFFICIENCY

Except at very high leads, efficiency increases as lead increases. Although the internally lubricated Acetal provides excellent lubricity, Ball Screw Assemblies remain significantly more efficient than any Acme design.

### LENGTH LIMITATIONS

3/16" to 1/4"	3'
5/16" to 10mm	4'
7/16" to 5/8"	6'
> 5/8"	12'

### LEAD ACCURACY

Standard Grade (SRA)	.010 in/ft
Precision Grade (SPR)	.003 in/ft

## MATERIAL PROPERTIES

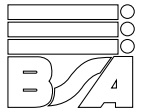
ASSEMBLY		SCREWS	NUTS**			
MAXIMUM TEMPERATURE	FRICTION COEFFICIENT	MATERIAL	MATERIAL	TENSILE STRENGTH	WATER ABSORPTION (24 HRS %)	THERMAL EXPANSION COEFFICIENT
180°F	0.08–0.14	Stainless Steel*	Acetal with PTFE	8,000 psi	0.15	5.4 x 10 <sup>-5</sup> in/in/°F

\*Other materials available on a custom basis.

\*\*Plastic nuts only. See bronze nut section for information on our bronze nut products, page 2-18.



# OVERVIEW



## PRECISION LEAD SCREWS & SUPERNUTS™



Rolled Acme lead screws are an excellent economical solution for your linear motion requirements. For over 15 years Ball Screws and Actuators has manufactured the highest quality lead screw assemblies. Our precision rolling machines ensure accurate positioning to 0.003 in/ft and our PTFE coating process produces assemblies that have less drag torque and last longer.

Ball Screws and Actuators provides a large array of standard plastic nut assemblies in anti-backlash or standard Supernut™ designs. For significantly higher loads, standard bronze nuts are available. BS&A also provides engineering design services to aid in your custom design requirements producing a lead—screw assembly to your specifications.

With the introduction of our new unique patent pending Zero-Backlash designs, BS&A provides assemblies with high axial stiffness, zero backlash and the absolute minimum drag torque to reduce motor requirements. These designs produce products that cost less, perform better and last longer. Both automatically adjust for wear insuring zero backlash for the life of the nut.

Our large selection of standard plastic nut assemblies all use an internally lubricated Acetal providing excellent lubricity and wear resistance with or without lubrication. For bronze nuts, BS&A uses SAE 660 bearing bronze which provides high load capacity with good PV performance.

BS&A offers end machining to your specification or can provide you with stock bearing mount, motor mount or complete stage assemblies as shown in **Section 4**.