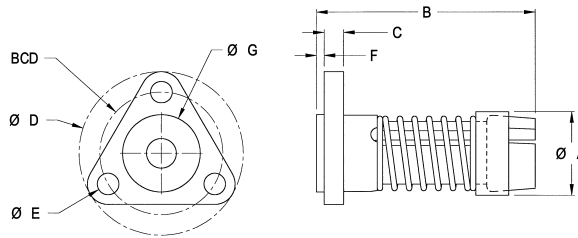


# ADVANCED ANTI-BACKLASH SUPERNUTS™

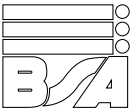


## AFT

The low cost AFT Supernut is designed for light load OEM applications and offers smooth movement and low drag torque for axial loads up to 10 pounds. The AFT anti-backlash collar automatically adjusts for wear for the life of the nut.



DIA.	LEAD	PART NO.	SUPERNUT DIMENSIONS								DESIGN LOAD	EFFICIENCY %	DRAG TORQUE OZ-IN
			A	B	C	D	E	F	G	BCD			
3/8"	0.063	AFT3716	0.77	2.00	0.20	1.50	0.20	0.06	0.71	1.125	10 lbs	36	2 - 5
	2mm	AFT37x2M										42	
	0.083	AFT3712										44	
	0.100	AFT3710										49	
	0.125	AFT3708										53	
	0.167	AFT2-3712										60	
	0.200	AFT2-3710										65	
	0.250	AFT2-3708										68	
	0.375	AFT4-3711										75	
	0.500	AFT4-3708										79	
	1.000	AFT5-3705										82	
1.200	AFT5-3704	82											
10mm	2mm	AFT10x2M										41	
	3mm	AFT10x3M										53	
	6mm	AFT4-10x1.5M										67	
	20mm	AFT6-10x3.3M										81	
7/16"	0.125	AFT2-4316										55	
	0.250	AFT2-4308										65	
	0.500	AFT4-4308										76	



# 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

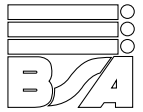
ASSEMBLY		SCREWS	NUTS**			
MAXIMUM TEMPERATURE	FRICTION COEFFICIENT	MATERIAL	MATERIAL	TENSILE STRENGTH	WATER ABSORPTION (24 HRS %)	THERMAL EXPANSION COEFFICIENT
180°F	0.08–0.14	Stainless Steel*	Acetal with PTFE	8,000 psi	0.15	5.4 x 10 <sup>-5</sup> in/in/°F

\*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**.