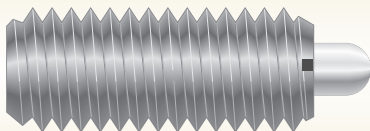


## ENHANCED SPRINGS

### Spring-Loaded Devices



Standard Plungers

### Description

Vlier standard plungers offer long travel, large bearing surfaces and numerous material and design options.

### Typical Uses

- ◆ Positioning
- ◆ Detents
- ◆ Indexes
- ◆ Ejecting
- ◆ Contacts
- ◆ Lifters
- ◆ Locking
- ◆ Insulators
- ◆ Latches

## STANDARD PLUNGER FAMILY

### Materials

Steel

Stainless Steel

### Types

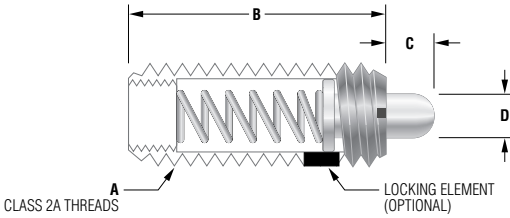
Unified ANSI & Metric  
Phenolic Nose, Delrin Nose  
Hexnose<sup>®</sup> Highlife<sup>®</sup> LongTravel  
Posi Hex

Unified ANSI & Metric  
Delrin Nose, Posi Hex

### Special Features

- ◆ Easy Installation
- ◆ Heavy & light end forces
- ◆ Accurate alignment
- ◆ Wear resistance
- ◆ Special environments
- ◆ Corrosion resistance
- ◆ Non-marring materials
- ◆ Non-chipping materials
- ◆ Insulating properties

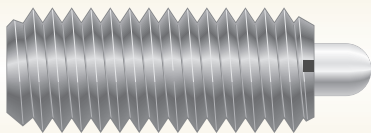
# Standard Plungers



Steel/ Stainless Steel					Heavy End Force			
Part No.		End Force, Lbs.			A	B	C	D
Steel	Stainless Steel	Init.	Mid.	Final				
<b>S48</b>	<b>SSS48</b>	1.5	3.0	4.5	6-32	17/32	1/16	.044-.045
<b>S48A</b>	<b>SSS48A</b>	1.0	1.3	1.6	6-32	3/8	1/16	.044-.045
<b>S50</b>	<b>SSS50</b>	2.7	5.0	7.3	8-32	5/8	3/32	.069-.070
<b>S52</b>	<b>SSS52</b>	2.9	7.0	11.1	10-32	3/4	1/8	.091-.092
<b>S54</b>	<b>SSS54</b>	3.0	8.0	13.0	1/4-20	1	3/16	.117-.118
<b>S54A</b>	<b>SSS54A</b>	3.0	8.0	13.0	1/4-28	1	3/16	.117-.118
<b>S54B</b>	<b>SSS54B</b>	2.0	5.5	9.0	1/4-20	3/4	1/8	.117-.118
<b>S56</b>	<b>SSS56</b>	3.0	9.0	15.0	5/16-18	1	3/16	.133-.135
<b>S58</b>	<b>SSS58</b>	5.5	10.0	14.5	3/8-16	1 1/8	3/16	.186-.187
<b>S60</b>	<b>SSS60</b>	6.6	12.0	17.4	1/2-13	1 1/4	1/4	.247-.248
<b>S62</b>	<b>SSS62</b>	10.5	18.0	25.5	5/8-11	1 1/2	5/16	.308-.310
<b>S64</b>	<b>SSS64</b>	6.7	22.0	37.3	3/4-10	1 3/4	5/16	.373-.374
<b>S66</b>	<b>SSS66</b>	16.0	42.0	68.0	1-8	2 13/32	1/2	.496-.498

Steel/ Stainless Steel					Light End Force			
Part No.		End Force, Lbs.			A	B	C	D
Steel	Stainless Steel	Init.	Mid.	Final				
<b>S49</b>	<b>SSS49</b>	0.5	1.0	1.5	6-32	17/32	1/16	.044-.045
<b>S51</b>	<b>SSS51</b>	0.7	1.5	2.3	8-32	5/8	3/32	.069-.070
<b>S53</b>	<b>SSS53</b>	1.3	2.0	2.7	10-32	3/4	1/8	.091-.092
<b>S55</b>	<b>SSS55</b>	1.0	2.5	4.0	1/4-20	1	3/16	.117-.118
<b>S55A</b>	<b>SSS55A</b>	1.0	2.5	4.0	1/4-28	1	3/16	.117-.118
<b>S57</b>	<b>SSS57</b>	1.5	3.0	4.5	5/16-18	1	3/16	.133-.135
<b>S59</b>	<b>SSS59</b>	2.8	5.0	7.2	3/8-16	1 1/8	3/16	.186-.187
<b>S61</b>	<b>SSS61</b>	2.7	6.0	9.3	1/2-13	1 1/4	1/4	.247-.248
<b>S63</b>	<b>SSS63</b>	3.5	7.0	10.5	5/8-11	1 1/2	5/16	.308-.310
<b>S67</b>	<b>SSS67</b>	4.0	17.5	31.0	1-8	2 13/32	1/2	.496-.498

To order with locking element – ADD “N” AT END OF PART NUMBER FOR THREAD SIZES 5/16-18 AND LARGER; 1/4-20 AND UNDER, ADD “P” AT END OF PART NO. ...

**Standard Plungers**

### **Metric Steel**

Vliet Standard Metric Steel plungers offer metric thread sizes and large bearing surfaces that prevent binding and assure perfect alignment at any extension.

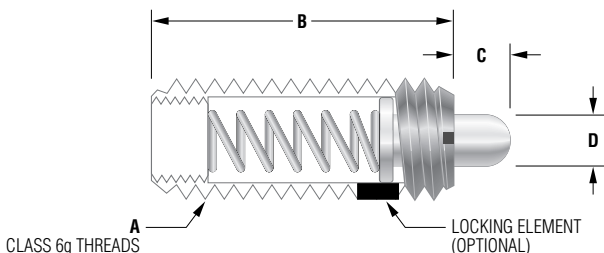
### **Metric Stainless Steel**

Vliet Standard Metric Stainless Steel plungers offer metric thread sizes in an all stainless steel design for maximum protection against rust and corrosion.

### **Special Features**

- ◆ Metric threads
- ◆ Long travel
- ◆ Heavy & light end forces
- ◆ Stainless steel resists corrosion
- ◆ Stainless steel withstands high temperatures

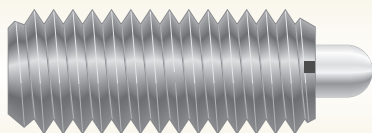
## Standard Plungers - Metric



Steel/Stainless Steel-Metric				Heavy End Force			
Part No.		End Forces N (Lbs)		A	B mm (in.)	C mm (in.)	D mm (in.)
Steel	Stainless Steel	Init.	Final				
<b>SM6A</b>	<b>SSM6A</b>	18 (4.05)	50 (11.24)	M6 x 1.0	20 (.787)	2,5 (.098)	2,7 (.106)
<b>SM8A</b>	<b>SSM8A</b>	25 (5.62)	70 (15.74)	M8 x 1.25	22 (.866)	3 (.118)	3,5 (.138)
<b>SM10A</b>	<b>SSM10A</b>	25 (5.62)	70 (15.74)	M10 x 1.5	22 (.866)	3 (.118)	4 (.157)
<b>SM12A</b>	<b>SSM12A</b>	45 (10.12)	110 (24.73)	M12 x 1.75	28 (1.102)	4 (.157)	6 (.236)

Steel/Stainless Steel-Metric				Light End Force			
Part No.		End Forces N (Lbs)		A	B mm (in.)	C mm (in.)	D mm (in.)
Steel	Stainless Steel	Init.	Final				
<b>SML6A</b>	<b>SSML6A</b>	7 (1.57)	20 (4.5)	M6 x 1.0	20 (.787)	2,5 (.098)	2,7 (.106)
<b>SML8A</b>	<b>SSML8A</b>	9 (2.02)	35 (7.87)	M8 x 1.25	22 (.866)	3 (.118)	3,5 (.138)
<b>SML10A</b>	<b>SSML10A</b>	9 (2.02)	35 (7.87)	M10 x 1.5	22 (.866)	3 (.118)	4 (.157)
<b>SML12A</b>	<b>SSML12A</b>	10 (2.25)	55 (12.36)	M12 x 1.75	28 (1.102)	4 (.157)	6 (.236)

To order with locking element – ADD “N” AT END OF PART NUMBER FOR THREAD SIZES M8 X 1.25 AND LARGER; M6 X 1.0 AND UNDER, ADD “P” AT END OF PART NUMBER.

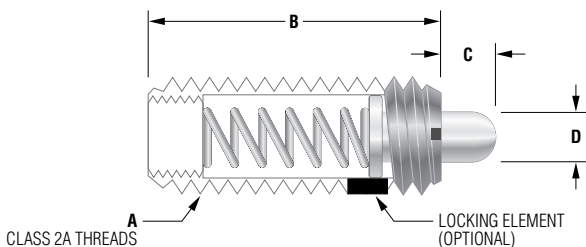

**Standard Plungers**

### Phenolic & Delrin® Nose Plungers

Vlier Steel body Phenolic nose and Delrin nose plungers and Stainless Steel body Delrin nose plungers are ideal for use with aluminum, brass or any soft, easily marred material.

### Special Features

- ◆ High-tensile strength phenolic plungers
- ◆ Insulating Delrin plungers
- ◆ Reinforced for minimum deformation under force
- ◆ High dielectric strength
- ◆ Excellent wear resistance
- ◆ Stainless steel resists corrosion
- ◆ Self-lubricating surface



**To order with locking element – ADD “N” AT END OF PART NUMBER FOR THREAD SIZES ¼ -20 AND LARGER; 10-32 AND SMALLER, ADD “P” AT END OF PART NO.**

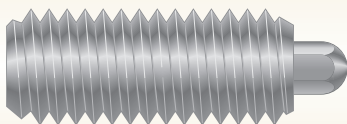
Steel - Phenolic Nose/Delrin® Nose					Heavy End Force			
Part No.		End Force, Lbs.			A	B	C	D
Phenolic Plunger	Delrin Plunger	Init.	Mid.	Final				
NS50	NNS50	2.7	5.0	7.3	8-32	5/8	3/32	.068-.070
NS52	NNS52	2.9	7.0	11.1	10-32	3/4	1/8	.090-.092
NS54	NNS54	3.0	8.0	13.0	1/4-20	1	3/16	.116-.118
NS54A	NNS54A	3.0	8.0	13.0	1/4-28	1	3/16	.116-.118
NS56	NNS56	3.0	9.0	15.0	5/16-18	1	3/16	.133-.135
NS58	NNS58	5.5	10.0	14.5	3/8-16	1 1/8	3/16	.185-.187
NS60	NNS60	6.6	12.0	17.4	1/2-13	1 1/4	1/4	.246-.248
NS62	NNS62	10.5	18.0	25.5	5/8-11	1 1/2	5/16	.308-.310

Steel - Phenolic Nose/Delrin Nose					Light End Force			
Part No.		End Force, Lbs.			A	B	C	D
Phenolic Plunger	Delrin Plunger	Init.	Mid.	Final				
NS51	NNS51	0.7	1.5	2.3	8-32	5/8	3/32	.068-.070
NS53	NNS53	1.3	2.0	2.7	10-32	3/4	1/8	.090-.092
NS55	NNS55	1.0	2.5	4.0	1/4-20	1	3/16	.116-.118
NS55A	NNS55A	1.0	2.5	4.0	1/4-28	1	3/16	.116-.118
NS57	NNS57	1.5	3.0	4.5	5/16-18	1	3/16	.133-.135
NS59	NNS59	2.8	5.0	7.2	3/8-16	1 1/8	3/16	.185-.187
NS61	NNS61	2.7	6.0	9.3	1/2-13	1 1/4	1/4	.246-.248
NS63	NNS63	3.5	7.0	10.5	5/8-11	1 1/2	5/16	.308-.310

Stainless Steel - Delrin Nose					Heavy End Force			
Part No.	End Force, Lbs.			A	B	C	D	
	Init.	Mid.	Final					
SSSD50	2.7	5.0	7.3	8-32	5/8	3/32	.068-.070	
SSSD52	2.9	7.0	11.1	10-32	3/4	1/8	.090-.092	
SSSD54	3.0	8.0	13.0	1/4-20	1	3/16	.116-.118	
SSSD54A	3.0	8.0	13.0	1/4-28	1	3/16	.116-.118	
SSSD54B	2.0	5.5	9.0	1/4-20	3/4	1/8	.116-.118	
SSSD56	3.0	9.0	15.0	5/16-18	1	3/16	.133-.135	
SSSD58	5.5	10.0	14.5	3/8-16	1 1/8	3/16	.186-.187	
SSSD60	6.6	12.0	17.4	1/2-13	1 1/4	1/4	.247-.248	
SSSD62	10.5	18.0	25.5	5/8-11	1 1/2	5/16	.308-.310	

Stainless Steel - Delrin Nose					Light End Force			
Part No.	End Force, Lbs.			A	B	C	D	
	Init.	Mid.	Final					
SSSD51	0.7	1.5	2.3	8-32	5/8	3/32	.069-.070	
SSSD53	1.3	2.0	2.7	10-32	3/4	1/8	.091-.092	
SSSD55	1.0	2.5	4.0	1/4-20	1	3/16	.117-.118	
SSSD55A	1.0	2.5	4.0	1/4-28	1	3/16	.117-.118	
SSSD57	1.5	3.0	4.5	5/16-18	1	3/16	.133-.135	
SSSD59	2.8	5.0	7.2	3/8-16	1 1/8	3/16	.185-.187	
SSSD61	2.7	6.0	9.3	1/2-13	1 1/4	1/4	.246-.248	
SSSD63	3.5	7.0	10.5	5/8-11	1 1/2	5/16	.308-.310	

DELIRIN IS A REGISTERED TRADEMARK OF DUPONT CORP.



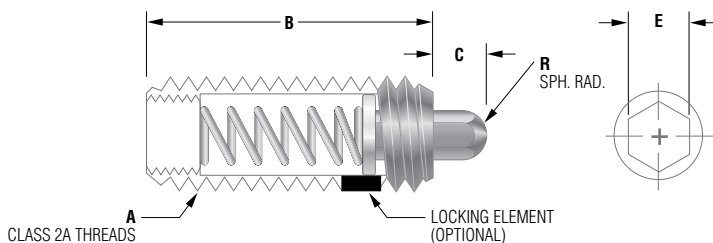
Standard Plungers

### Hexnose® Steel Plungers

Vlier Hexnose Standard Steel Plungers provide a hexagonal plunger nose for easy adjustment with a standard end or socket wrench plunger end to speed installation or removal. Hexagonal plungers are hardened for long life.

### Special Features

- ◆ Hexagonal nose design
- ◆ Case hardened plunger
- ◆ Fast installation or removal
- ◆ Steel black finish



Hexnose-Steel				Heavy End Force				
Part No.	End Force, Lbs.			A	B	C	E	R
	Init.	Mid.	Final					
H54	3.0	8.0	13.0	1/4-20	1	3/16	1/8	.071
H56	3.0	9.0	15.0	5/16-18	1	3/16	1/8	.071
H58	5.5	10.0	14.5	3/8-16	1 1/8	3/16	3/16	.108
H60	6.6	12.0	17.4	1/2-13	1 1/4	1/4	1/4	.144
H62	10.5	18.0	25.5	5/8-11	1 1/2	5/16	5/16	.179
H64	6.7	22.0	37.3	3/4-10	1 3/4	5/16	3/8	.215
H66	16.0	42.0	68.0	1-8	2 13/32	1/2	1/2	.290

## Standard Plungers - Special Types

Hexnose-Steel				Light End Force				
Part No.	End Force, Lbs.			A	B	C	E	R
	Init.	Mid.	Final					
H55	1.0	2.5	4.0	1/4-20	1	3/16	1/8	.071
H57	1.5	3.0	4.5	5/16-18	1	3/16	1/8	.071
H59	2.8	5.0	7.2	3/8-16	1 1/8	3/16	3/16	.108
H61	2.7	6.0	9.3	1/2-13	1 1/4	1/4	1/4	.144
H63	3.5	7.0	10.5	5/8-11	1 1/2	5/16	5/16	.179
H67	4.0	17.5	31.0	1-8	2 13/32	1/2	1/2	.290

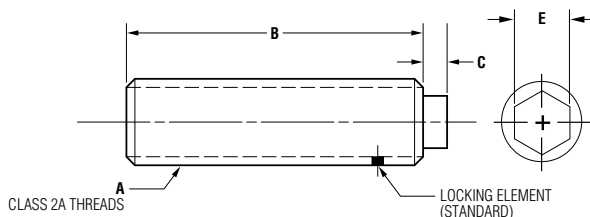
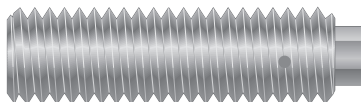
To order with locking element – ADD “N” AT END OF PART NUMBER.

### Hi-Life® Steel Plungers

Vlier Hi-Life steel plungers are specially designed to take tough abuse of high-speed, long-life product applications.

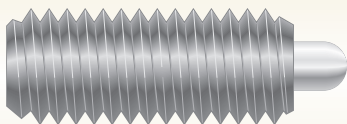
#### Special Features

- ◆ Flat hexagonal nose design
- ◆ Long spring life
- ◆ Steel, black finish
- ◆ Easy access and adjustment



Hi-Life-Steel						
Part No.	End Force, Lbs.		A	B	C	E
	Initial	Final				
HT54N	1/2	6 1/8	1/4-20	1.343	.078	1/8
HT56N	1/2	8	5/16-18	1.406	.088	1/8
HT58N	1/2	9 7/8	3/8-16	1.532	.097	3/16
HT60N	1/2	16	1/2-13	1.718	.105	1/4





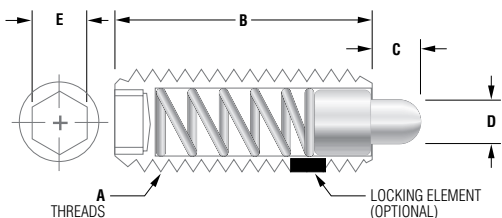
Standard Plungers

### Posi Hex - Steel Plungers

Vlier Posi Hex Steel Plungers allow for easy installation and removal using a hex wrench. Posi Hex plungers withstand high torque and are recommended for use with nylon locking elements.

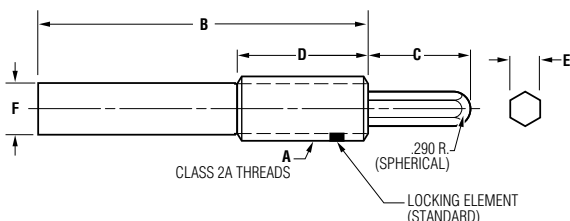
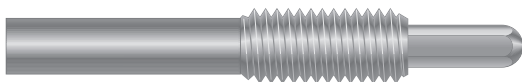
### Posi Hex - Stainless Steel Plungers

Vlier Posi Hex Stainless Steel Plungers are made entirely of stainless steel alloy and provide maximum protection against rust and corrosion.



### Long Travel - Steel Plungers

Vlier Long Travel, hexagonal shaped steel plungers are ideal for high-speed, long-life applications. Easy insertion, adjustment or removal with a standard wrench from plunger end.



# Standard Plungers - Posi Hex & Long Travel

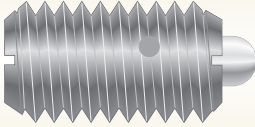
Posi Hex - Steel/Stainless Steel					Heavy End Force				
Part No.		End Force, Lbs.			A	B	C	D	E
Steel	Stainless Steel	Init.	Mid.	Final					
PH48	SSPH48	1.5	3.0	4.5	6-32	17/32	1/16	.044-.045	.050
PH48B	SSPH48B	1.0	1.3	1.6	6-32	17/32	1/16	.044-.045	.050
PH50	SSPH50	2.7	5.0	7.3	8-32	5/8	3/32	.069-.070	.063
PH52	SSPH52	2.9	7.0	11.1	10-32	3/4	1/8	.091-.092	.063
PH54	SSPH54	3.0	8.0	13.0	1/4-20	1	3/16	.117-.118	.079
PH54A	SSPH54A	3.0	8.0	13.0	1/4-28	1	3/16	.117-.118	.079
PH54B	SSPH54B	2.0	5.5	9.0	1/4-20	3/4	1/8	.117-.118	.079
PH56	SSPH56	3.0	9.0	15.0	5/16-18	1	3/16	.133-.135	.093

Posi Hex - Steel/Stainless Steel					Light End Force				
Part No.		End Force, Lbs.			A	B	C	D	E
Steel	Stainless Steel	Init.	Mid.	Final					
PH49	SSPH49	0.5	1.0	1.5	6-32	17/32	1/16	.044-.045	.050
PH51	SSPH51	0.7	1.5	2.3	8-32	5/8	3/32	.069-.070	.063
PH53	SSPH53	1.3	2.0	2.7	10-32	3/4	1/8	.091-.092	.063
PH55	SSPH55	1.0	2.5	4.0	1/4-20	1	3/16	.117-.118	.079
PH55A	SSPH55A	1.0	2.5	4.0	1/4-28	1	3/16	.117-.118	.079
PH57	SSPH57	1.5	3.0	4.5	5/16-18	1	3/16	.133-.135	.093

To order with locking element – ADD “N” AT END OF PART NUMBER FOR THREAD SIZES 1/4-20 AND LARGER; 10-32 AND SMALLER, ADD “P” AT END OF PART NO.

Long Travel - Steel			Heavy End Force					
Part No.	End Force, Lbs.		A	B	C	D	E	F
	Initial	Final						
HH6251	4.0	20.0	5/8-11	3.12	1.00	1.25	.31	.510
HH7501	4.0	35.0	3/4-10	3.75	1.00	1.50	.38	.612
HH1000	16	50 3/4	1-8	5.00	1.00	2.00	.50	.844
HH1015	16	68	1-8	5.00	1.50	2.00	.50	.844

Long Travel - Steel			Light End Force					
Part No.	End Force, Lbs.		A	B	C	D	E	F
	Initial	Final						
HL1000	4	22	1-8	5	1.00	2.00	.50	.844
HL1015	4	31	1-8	5	1.50	2.00	.50	.844

**Stubby Plungers****Description**

Vlier Stubby Plungers offer greater travel than ball plungers and less travel than standard plungers. These compact units provide considerable plunger travel and high end forces ideal for restricted space applications.

**Typical Uses**

- ◆ Limited space
- ◆ Indexing
- ◆ Electrical contacts
- ◆ Part position
- ◆ Locking
- ◆ Detents

**STUBBY PLUNGER FAMILY****Materials**

Steel

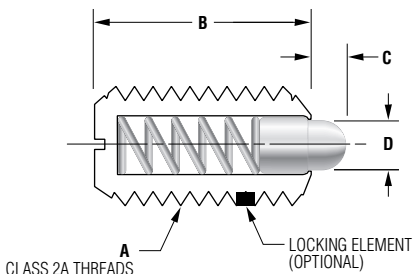
Stainless Steel

**Types**
 Unified ANSI  
 Delrin<sup>®</sup> Nose  
 Steel Nose

 Unified ANSI  
 Delrin<sup>®</sup> Nose
**Special Features**

- ◆ Case hardened plunger
- ◆ Wear & corrosion resistance
- ◆ Compact size
- ◆ Allows some sideloading
- ◆ Intermediate travel
- ◆ Screwdriver installation

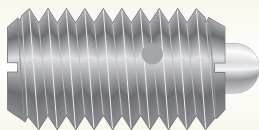
## Stubby Plungers-Steel Nose



Steel/Stainless Steel				Heavy End Force			
Part No.		End Force, Lbs.		A	B	C	D
Steel	Stainless Steel	Initial	Final				
<b>M50A</b>	<b>SSM50A</b>	1½	4¾	8-32	.437	.052	.070
<b>M50</b>	<b>SSM50</b>	1½	4¾	8-36	.437	.052	.070
<b>M52</b>	<b>SSM52</b>	1¾	6¼	10-32	.468	.065	.093
<b>M54</b>	<b>SSM54</b>	3	10½	¼-20	.531	.078	.119
<b>M56</b>	<b>SSM56</b>	3¾	15½	⅝-18	.562	.084	.135
<b>M58</b>	<b>SSM58</b>	4½	18½	⅜-16	.625	.110	.186
<b>M60</b>	<b>SSM60</b>	5	28	½-13	.750	.151	.248
<b>M62</b>	<b>SSM62</b>	7	50	⅝-11	1.062	.215	.310

Steel/Stainless Steel				Light End Force			
Part No.		End Force, Lbs.		A	B	C	D
Steel	Stainless Steel	Initial	Final				
<b>M51A</b>	<b>SSM51A</b>	½	1½	8-32	.437	.052	.070
<b>M51</b>	<b>SSM51</b>	½	1½	8-36	.437	.052	.070
<b>M53</b>	<b>SSM53</b>	¾	2½	10-32	.468	.065	.093
<b>M55</b>	<b>SSM55</b>	1	3½	¼-20	.531	.078	.119
<b>M57</b>	<b>SSM57</b>	1¼	4	⅝-18	.562	.084	.135
<b>M59</b>	<b>SSM59</b>	1½	5	⅜-16	.625	.110	.186
<b>M61</b>	<b>SSM61</b>	1¾	5½	½-13	.750	.151	.248
<b>M63</b>	<b>SSM63</b>	2	8½	⅝-11	1.062	.215	.310

To order with locking element – ADD “N” AT END OF PART NUMBER FOR THREAD SIZES ¼-20 AND LARGER; 10-32 AND SMALLER, ADD “P” AT END OF PART NO.

**Stubby Plungers**

### **Stubby Steel - Delrin® Nose**

Vlier Stubby Steel - Delrin Nose plungers provide resistance to repeated impacts, moisture, solvents, heat up to 190°F with the electrical insulating properties of a Delrin plunger.

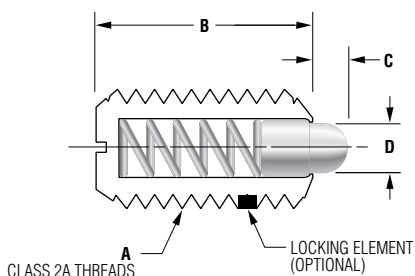
### **Stubby Stainless Steel - Delrin® Nose**

Vlier Stubby Stainless Steel - Delrin Nose plungers offer the added advantage of a stainless steel design for maximum protection against rust and corrosion.

### **Special Features**

- ◆ Impact resistance
- ◆ Moisture/solvent resistance
- ◆ Self-lubricating surface
- ◆ Stainless steel resists corrosion
- ◆ High temperature tolerance

## Stubby Plungers - Delrin Nose

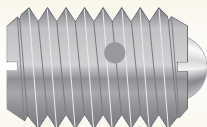


Steel/Stainless Steel Body-Delrin Nose <b>B</b> No Heavy End Force							
Part No.		End Force, Lbs.		A	B	C	D
Steel Body	Stainless Steel Body	Initial	Final				
NM50A	SSMD50A	1½	4¾	8-32	.437	.052	.070
NM50	SSMD50	1½	4¾	8-36	.437	.052	.070
NM52	SSMD52	1¾	6¼	10-32	.468	.065	.093
NM54	SSMD54	3	10½	¼-20	.531	.078	.119
NM56	SSMD56	3¾	15½	⅝-18	.562	.084	.135
NM58	SSMD58	4½	18½	⅜-16	.625	.110	.186
NM60	SSMD60	5	28	½-13	.750	.151	.248
NM62	SSMD62	7	50	⅝-11	1.062	.215	.310

Steel/Stainless Steel Body-Delrin Nose <b>Light End Force</b>							
Part No.		End Force, Lbs.		A	B	C	D
Steel Body	Stainless Steel Body	Initial	Final				
NM51A	SSMD51A	½	1½	8-32	.437	.052	.070
NM51	SSMD51	½	1½	8-36	.437	.052	.070
NM53	SSMD53	¾	2½	10-32	.468	.065	.093
NM55	SSMD55	1	3½	¼-20	.531	.078	.119
NM57	SSMD57	1¼	4	⅝-18	.562	.084	.135
NM59	SSMD59	1½	5	⅜-16	.625	.110	.186
NM61	SSMD61	1¾	5½	½-13	.750	.151	.248
NM63	SSMD63	2	8½	⅝-11	1.062	.215	.310

To order with locking element – ADD “N” AT END OF PART NUMBER FOR THREAD SIZES ¼-20 AND LARGER; 10-32 AND SMALLER, ADD “P” AT END OF PART NO.

DELRIN IS A REGISTERED TRADEMARK OF DUPONT CORP.


**Ball Plungers**

### Description

Vliet Steel & Stainless Steel Ball plungers are compact units suitable for applications with side loading requirements. Stainless Steel Ball plungers offer maximum protection against rust and corrosion ideal for food, medical, and special environments.

### Typical Uses

- ◆ Indexing
- ◆ Gear shifters
- ◆ Locators
- ◆ Torque limiting
- ◆ Positioning
- ◆ Detents

### BALL PLUNGER FAMILY

#### Materials

**Steel**

#### Types

Unified ANSI & Metric  
 Delrin<sup>®</sup> Body - Stainless Ball  
 Steel Body - Nylon Ball  
 Steel Body - Stainless Ball

**Stainless Steel**

Unified ANSI & Metric  
 Stainless Body - Nylon Ball  
 Delrin Body - Stainless Ball  
 Stainless Steel Ball & Body

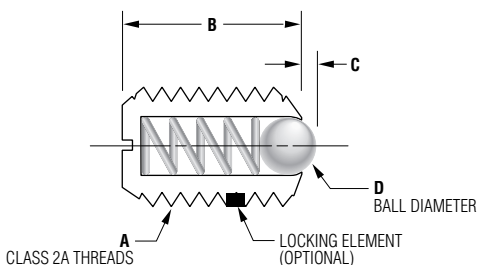
**Delrin**

Delrin Body - Nylon Ball

### Special Features

- ◆ Smallest & lightest spring-loaded device
- ◆ Side-load tolerant
- ◆ Controlled end forces
- ◆ Screwdriver installation
- ◆ Stainless steel resists corrosion
- ◆ Stainless steel withstands high temperatures

## Ball Plungers-Steel & Stainless Steel



Steel/ Stainless Steel Ball Plunger							
Part No.		End Force, Lbs.		A	B	C	D
Steel	Stainless Steel	Init.	Final				
<b>B46</b>	<b>SSB46</b>	1/8	1/2	4-48	.187	.020	.062
<b>B47</b>	<b>SSB47</b>	1/4	3/4	5-40	.250	.020	.062
<b>B48</b>	<b>SSB48</b>	1/2	1	6-40	.312	.023	.078
<b>B50A</b>	<b>SSB50A</b>	1/2	1 1/4	8-32	.344	.025	.094
<b>B50</b>	<b>SSB50</b>	1/2	1 1/4	8-36	.344	.025	.094
<b>B52</b>	<b>SSB52</b>	1 1/2	3	10-32	.513	.025	.094
<b>BL52</b>	<b>SSBL52</b>	1/2	1 1/2				
<b>BH52</b>	<b>SSBH52</b>	2	5				
<b>B54</b>	<b>SSB54</b>	3	7	1/4-20	.531	.035	.125
<b>BL54</b>	<b>SSBL54</b>	2	4				
<b>BH54</b>	<b>SSBH54</b>	4	12				
<b>B56</b>	<b>SSB56</b>	4	9	5/16-18	.578	.040	.156
<b>BL56</b>	<b>SSBL56</b>	2	4 1/2				
<b>BH56</b>	<b>SSBH56</b>	6	17				
<b>B58</b>	<b>SSB58</b>	5	10	3/8-16	.625	.048	.188
<b>BL58</b>	<b>SSBL58</b>	2 1/2	5				
<b>BH58</b>	<b>SSBH58</b>	6	21				
<b>B60</b>	<b>SSB60</b>	6	12	1/2-13	.750	.072	.281
<b>BL60</b>	<b>SSBL60</b>	3	6				
<b>BH60</b>	<b>SSBH60</b>	6	30				
<b>B62</b>	<b>SSB62</b>	9	18	5/8-11	.984	.096	.375
<b>BL62</b>	<b>SSBL62</b>	4 1/2	9				
<b>BH62</b>	<b>SSBH62</b>	7	50				

To order with locking element – ADD “N” AT END OF PART NUMBER FOR THREAD SIZES 1/4 -20 AND LARGER; 10-32 AND SMALLER, ADD “P” AT END OF PART NO.

### END FORCE COLOR CODE:

**STEEL** BODIES ARE COLOR-CODED TO INDICATE END FORCES; SILVER = LIGHT END FORCE; BLACK = STANDARD END FORCE; GOLD = HEAVY END FORCE

**STAINLESS STEEL** BODIES ARE COLOR-CODED ON THE REAR OF THE ASSEMBLY TO INDICATE END FORCES; PLAIN = LIGHT END FORCE; BLACK = STANDARD END FORCE; ORANGE = HEAVY END FORCE.

\*THREAD SIZES AS LISTED 8-36 AND SMALLER ARE NOT COLOR CODED.





Posi Hex Ball Plungers

### **Posi Hex - Steel Ball Plungers**

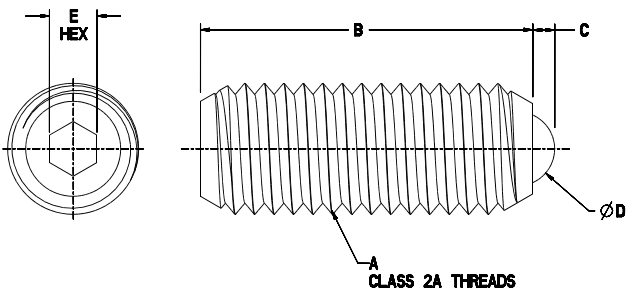
The Vlier Posi Hex Steel Ball Plungers allow for easy installation and removal using a hex wrench. Posi Hex plungers withstand high torque and are recommended for use with nylon locking elements.

### **Posi Hex - Stainless Steel Ball Plungers**

The Vlier Posi Hex Stainless Steel Ball Plungers are made entirely of stainless steel alloy and provide maximum protection against rust and corrosion.

### **Special Features**

- ◆ Hex Wrench Installation
- ◆ Will withstand high torque
- ◆ Quick installation and removal
- ◆ Controlled end forces

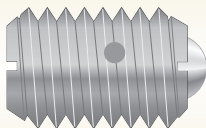


## Enhanced Posi-Hex Ball Plungers - Steel

PART NUMBERS	END FORCES (LB)		A	B (+/- .010)	C	D	E
	INITIAL	FINAL					
STEEL			THREAD SIZE	BODY LENGTH	PROJECTION	BALL DIAMETER	HEX SIZE
PHB48A	.50	1.0	6-40	.350	.023	.078	.050
PHB50	.50	1.25	8-32	.445	.025	.094	.063
PHB52	1.5	3.0	10-32	.570	.025	.094	.079
PHB54	3.0	7.0	1/4-20	.675	.035	.125	.079
PHB56	4.0	9.0	5/16-18	.720	.040	.156	.095
PHB58	5.0	10.0	3/8-16	.800	.048	.188	.156
PHB60	6.0	12.0	1/2-13	1.05	.072	.281	.219
PHB62	9.0	18.0	5/8-11	1.25	.096	.375	.253

## Enhanced Posi-Hex Ball Plungers - Stainless Steel

PART NUMBERS	END FORCES (LB)		A	B (+/- .010)	C	D	E
	INITIAL	FINAL					
STAINLESS STEEL			THREAD SIZE	BODY LENGTH	PROJECTION	BALL DIAMETER	HEX SIZE
SSPHB48A	.50	1.0	6-40	.350	.023	.078	.050
SSPHB50	.50	1.25	8-32	.445	.025	.094	.063
SSPHB52	1.5	3.0	10-32	.570	.025	.094	.079
SSPHB54	3.0	7.0	1/4-20	.675	.035	.125	.079
SSPHB56	4.0	9.0	5/16-18	.720	.040	.156	.095
SSPHB58	5.0	10.0	3/8-16	.800	.048	.188	.156
SSPHB60	6.0	12.0	1/2-13	1.05	.072	.281	.219
SSPHB62	9.0	18.0	5/8-11	1.25	.096	.375	.253

**Ball Plungers**

### **Metric Steel**

Vliet Metric Steel Ball Plungers provide all the benefits of Vliet Ball plungers in a metric thread.

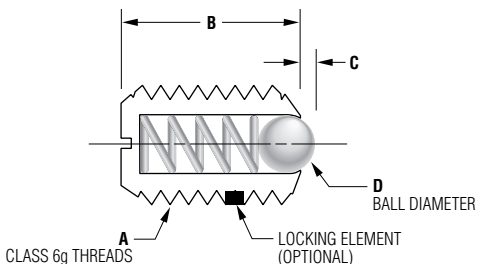
### **Metric Stainless Steel**

Vliet Metric Stainless Steel Ball Plungers offer metric thread sizes in an all stainless steel design for maximum protection against rust and corrosion.

### **Special Features**

- ◆ Metric threads
- ◆ Side-load tolerant
- ◆ Controlled end forces
- ◆ Screwdriver installation
- ◆ Stainless steel resists corrosion
- ◆ Stainless steel withstands high temperatures

## Ball Plungers - Metric



Steel/ Stainless Steel Ball Plunger				Metric			
Part No.		End Force, N (Lbs.)		A (Class Threads) 6g-ISO	B mm (in.)	C mm (in.)	D mm (in.)
Steel	Stainless Steel	Init.	Final				
<b>BM4A</b>	<b>SBM4</b>	4 (.90)	10 (2.25)	M4 x 0.7	9 (.354)	0,8 (.032)	2,5 (.098)
<b>BM6A</b>	<b>SBM6</b>	9 (2.02)	13 (2.92)	M6 x 1.0	14 (.551)	1 (.039)	3,5 (.138)
<b>BML6A</b>	<b>SBML6</b>	2 (.45)	6 (1.35)				
<b>BMH6A</b>	<b>SBMH6</b>	28 (6.30)	40 (9.0)				
<b>BM8A</b>	<b>SBM8</b>	15 (3.37)	30 (6.75)	M8 x 1.25	16 (.630)	1,5 (.059)	5,0 (.196)
<b>BML8A</b>	<b>SBML8</b>	5 (1.12)	10 (2.25)				
<b>BMH8A</b>	<b>SBMH8</b>	40 (9)	60 (13.5)				
<b>BM10A</b>	<b>SBM10</b>	20 (4.5)	35 (7.87)	M10 x 1.5	19 (.748)	2 (.079)	6 (.236)
<b>BML10A</b>	<b>SBML10</b>	8 (1.8)	15 (3.37)				
<b>BMH10A</b>	<b>SBMH10</b>	60 (13.5)	90 (20.23)				
<b>BM12A</b>	<b>SBM12</b>	30 (6.75)	55 (12.36)	M12 x 1.75	22 (.866)	2,5 (.098)	8 (.315)
<b>BML12A</b>	<b>SBML12</b>	10 (2.25)	20 (4.5)				
<b>BMH12A</b>	<b>SBMH12</b>	75 (16.86)	115 (25.85)				

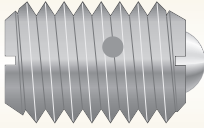
To order with locking element – ADD “N” AT END OF PART NUMBER FOR THREAD SIZES M8 X 1.25 AND LARGER; M6 X 1.0 AND SMALLER, ADD “P” AT END.

### END FORCE COLOR CODE:

**STEEL** BODIES ARE COLOR-CODED TO INDICATE END FORCES; SILVER = LIGHT END FORCE; BLACK = STANDARD END FORCE; GOLD = HEAVY END FORCE

**STAINLESS STEEL** BODIES ARE COLOR-CODED ON THE REAR OF THE ASSEMBLY TO INDICATE END FORCES; PLAIN = LIGHT END FORCE; BLACK = STANDARD END FORCE; ORANGE = HEAVY END FORCE.

\*THREAD SIZES METRIC M4 OR SMALLER ARE NOT COLOR CODED.

**Ball Plungers****Steel Body - Nylon Ball**

Vlier Steel Body - Nylon Ball Plungers provide resistance to repeated impacts, moisture, solvents, heat up to 190°F. Plunger tip provides electrical insulating properties.

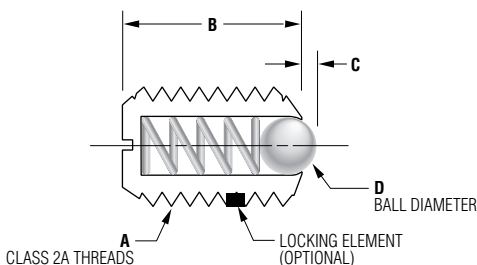
**Stainless Steel Body - Nylon Ball**

Vlier Stainless Steel Body - Nylon Ball Plungers provide the added benefit of a stainless steel body for maximum protection against rust and corrosion.

**Special Features**

- ◆ Steel or stainless steel body with nylon ball
- ◆ Highly durable & non-marring
- ◆ Steel - zinc plate with black, yellow or clear chromate
- ◆ Stainless steel spring standard
- ◆ Compact and lightweight
- ◆ Withstands side loading
- ◆ Controlled end forces

## Ball Plungers - Nylon Ball



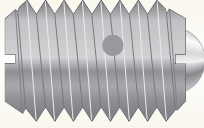
Metric Steel / Stainless Steel Body-Nylon Ball							
Nylon Ball		End Force, Lbs.		A	B	C	D
Steel Body	Stainless Steel Body	Init.	Final				
DB46	DSSB46	1/8	1/2	4-48	.187	.020	.062
DB47	DSSB47	1/4	3/4	5-40	.250	.020	.062
DB48	DSSB48	1/2	1	6-40	.312	.023	.078
DB50A	DSSB50A	1/2	1 1/4	8-32	.344	.025	.094
DB50	DSSB50	1/2	1 1/4	8-36	.344	.025	.094
DB52	DSSB52	1 1/2	3	10-32	.513	.025	.094
DBL52	DSSBL52	1/2	1 1/2				
DBH52	DSSBH52	2	5				
DB54	DSSB54	3	7	1/4-20	.531	.035	.125
DBL54	DSSBL54	2	4				
DBH54	DSSBH54	4	12				
DB56	DSSB56	4	9	5/16-18	.578	.040	.156
DBL56	DSSBL56	2	4 1/2				
DBH56	DSSBH56	6	17				
DB58	DSSB58	5	10	3/8-16	.625	.048	.188
DBL58	DSSBL58	2 1/2	5				
DBH58	DSSBH58	6	21				
DB60	DSSB60	6	12	1/2-13	.750	.072	.281
DBL60	DSSBL60	3	6				
DBH60	DSSBH60	6	30				
DB62	DSSB62	9	18	5/8-11	.984	.096	.375
DBL62	DSSBL62	4 1/2	9				
DBH62	DSSBH62	7	50				

To order with locking element – ADD “N” AT END OF PART NUMBER FOR THREAD SIZES 5/16-18 AND LARGER; 1/4-20 AND SMALLER, ADD “P” AT END OF PART NO. END FORCE COLOR CODE:

**STEEL** BODIES ARE COLOR-CODED TO INDICATE END FORCES; SILVER = LIGHT END FORCE; BLACK = STANDARD END FORCE; GOLD = HEAVY END FORCE

**STAINLESS STEEL** BODIES ARE COLOR-CODED ON THE REAR OF THE ASSEMBLY TO INDICATE END FORCES; PLAIN = LIGHT END FORCE; BLACK = STANDARD END FORCE; ORANGE = HEAVY END FORCE.

\*THREAD SIZES AS LISTED 8-36 AND SMALLER ARE NOT COLOR CODED.

**Ball Plungers****Metric Steel Body - Nylon Ball**

Vlier Steel Body - Nylon Ball Plungers provide resistance to repeated impacts, moisture, solvents, heat up to 190°F.

Plunger tip provides electrical insulating properties.

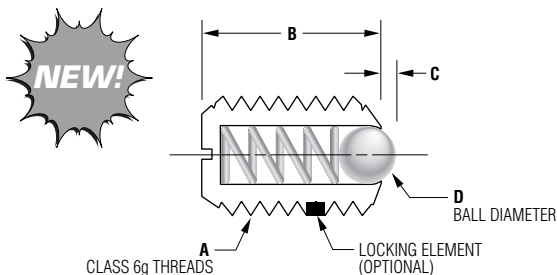
**Metric Stainless Steel Body - Nylon Ball**

Vlier Stainless Steel Body - Nylon Ball Plungers provide the added benefit of a stainless steel body for maximum protection against rust and corrosion.

**Special Features**

- ◆ Steel or stainless steel body with nylon ball
- ◆ Highly durable & non-marring
- ◆ Steel - zinc plate with black, yellow or clear chromate
- ◆ Stainless steel spring standard
- ◆ Compact and lightweight
- ◆ Withstands side loading
- ◆ Controlled end forces

## Metric Ball Plungers - Nylon Ball



Steel/ Stainless Steel Ball Plunger				Metric			
Part No.		End Force, N (Lbs.)		A (Class Threads) 6g-ISO	B mm (in.)	C mm (in.)	D mm (in.)
		Init.	Final				
Steel	Stainless Steel						
<b>DBM4A</b>	<b>DSBM4</b>	4 (.90)	10 (2.25)	M4 x 0.7	9 (.354)	0,8 (.032)	2,5 (.098)
<b>DBM6A</b>	<b>DSBM6</b>	9 (2.02)	13 (2.92)	M6 x 1.0	14 (.551)	1 (.039)	3,5 (.138)
<b>DBML6A</b>	<b>DSBML6</b>	2 (.45)	6 (1.35)				
<b>DBMH6A</b>	<b>DSBMH6</b>	28 (6.30)	40 (9.0)				
<b>DBM8A</b>	<b>DSBM8</b>	15 (3.37)	30 (6.75)	M8 x 1.25	16 (.630)	1,5 (.059)	5,0 (.196)
<b>DBML8A</b>	<b>DSBML8</b>	5 (1.12)	10 (2.25)				
<b>DBMH8A</b>	<b>DSBMH8</b>	40 (9)	60 (13.5)				
<b>DBM10A</b>	<b>DSBM10</b>	20 (4.5)	35 (7.87)	M10 x 1.5	19 (.748)	2 (.079)	6 (.236)
<b>DBML10A</b>	<b>DSBML10</b>	8 (1.8)	15 (3.37)				
<b>DBMH10A</b>	<b>DSBMH10</b>	60 (13.5)	90 (20.23)				
<b>DBM12A</b>	<b>DSBM12</b>	30 (6.75)	55 (12.36)	M12 x 1.75	22 (.866)	2,5 (.098)	8 (.315)
<b>DBML12A</b>	<b>DSBML12</b>	10 (2.25)	20 (4.5)				
<b>DBMH12A</b>	<b>DSBMH12</b>	75 (16.86)	115 (25.85)				

To order with locking element – ADD “N” AT END OF PART NUMBER FOR THREAD SIZES M8 X 1.25 AND LARGER; M6 X 1.0 AND SMALLER, ADD “P” AT END.

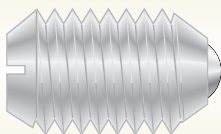
### END FORCE COLOR CODE:

**STEEL** BODIES ARE COLOR-CODED TO INDICATE END FORCES; SILVER = LIGHT END FORCE; BLACK = STANDARD END FORCE; GOLD = HEAVY END FORCE

**STAINLESS STEEL** BODIES ARE COLOR-CODED ON THE REAR OF THE ASSEMBLY TO INDICATE END FORCES; PLAIN = LIGHT END FORCE; BLACK = STANDARD END FORCE; ORANGE = HEAVY END FORCE.

\*THREAD SIZES METRIC M4 OR SMALLER ARE NOT COLOR CODED.



**Ball Plungers****Delrin® Body - Stainless Steel/Nylon Ball**

Vlier Delrin Body Ball Plungers with stainless steel or nylon ball are ideal for applications where products or components are made mostly or entirely of plastic.

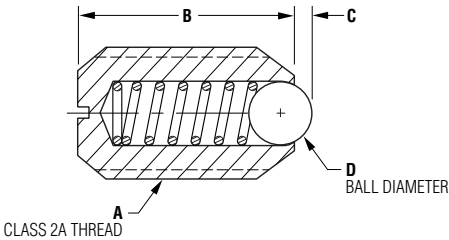
**Special Features**

- ◆ Electrical isolation
- ◆ Highly durable
- ◆ Stainless steel spring
- ◆ Compact and lightweight
- ◆ Withstands side loading
- ◆ Controlled end forces

**Special Uses**

- ◆ Lightweight applications

## Ball Plungers - Delrin Body



### Delrin Body - Stainless Steel Ball

Part No.	Body Color Code	End Force, Lbs.		A	B	C	D
		Initial	Final				
<b>D54</b>	White	2	5	1/4-20	.531	.030	.125
<b>DL54</b>	Blue	1	2.5				
<b>D56</b>	White	4	9	5/16-18	.578	.039	.156
<b>DL56</b>	Blue	2	4.5				
<b>D58</b>	White	5	10	3/8-16	.625	.053	.187
<b>DL58</b>	Blue	2.5	5				

### Delrin Body - Nylon Ball

Part No.	Body Color Code	End Force, Lbs.		A	B	C	D
		Initial	Final				
<b>ND54</b>	White	2	5	1/4-20	.531	.030	.125
<b>NDL54</b>	Blue	1	2.5				
<b>ND56</b>	White	4	9	5/16-18	.578	.039	.156
<b>NDL56</b>	Blue	2	4.5				
<b>ND58</b>	White	5	10	3/8-16	.625	.053	.187
<b>NDL58</b>	Blue	2.5	5				

color code – BODIES ARE COLOR-CODED TO INDICATE END FORCES; BLUE = LIGHT END FORCE; WHITE = HEAVY END FORCE.

DELRIN IS A REGISTERED TRADEMARK OF DUPONT CORP.

**Pushfit Plungers**

### Pushfit Steel

Vliet Pushfit Steel Ball Plungers are designed for simple, easy installation into wood, soft plastic or aluminum. Ideal where a threaded ball plunger is impractical or when threaded adjustments are not required.

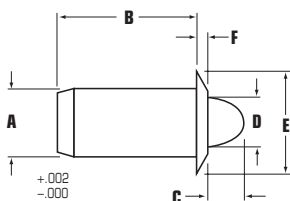
### Pushfit Stainless Steel

Vliet Pushfit Stainless Steel Ball Plungers offer the added benefit of an all stainless steel design for maximum protection against rust and corrosion.

### Special Features

- ◆ Simple installation
- ◆ No thread adjustment
- ◆ Stainless steel resists corrosion
- ◆ Stainless steel withstands high temperatures

### STANDARD PUSH-FIT PLUNGERS



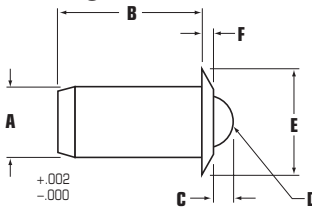
**Standard Plungers Steel/Stainless Steel – Heavy Force**

Steel	Stainless Steel	End Force Lbs		O.D.					
		Initial	Final	A	B	C	D	E	F
PFP52	SPFP52	1.5	4.5	0.188	0.441	0.094	0.121	0.250	0.044
PFP54	SPFP54	2.5	6	0.250	0.521	0.125	0.168	0.312	0.055
PFP58	SPFP58	5	14	0.375	0.786	0.187	0.234	0.500	0.096
PFP60	SPFP60	8	18	0.500	1.100	0.250	0.332	0.688	0.134

**Standard Plungers Steel/Stainless Steel – Light Force**

Steel	Stainless Steel	End Force Lbs		O.D.					
		Initial	Final	A	B	C	D	E	F
PFP51	SPFP51	0.75	2	0.188	0.441	0.094	0.121	0.250	0.044
PFP53	SPFP53	1.25	3	0.250	0.521	0.125	0.168	0.312	0.055
PFP57	SPFP57	2.5	7	0.375	0.786	0.187	0.234	0.500	0.096
PFP59	SPFP59	4	9	0.500	1.100	0.250	0.332	0.688	0.134

**Ball Push-Fit Plungers**



**Ball Plungers Stainless Steel Ball – Heavy Force**

Steel	Stainless Steel	End Force Lbs		O.D.					
		Initial	Final	A	B	C	D	E	F
PFB48	SPFB48	0.75	2.5	0.125	0.252	0.035	0.094	0.187	0.032
PFB52	SPFB52	2.00	5.0	0.188	0.394	0.058	0.156	0.250	0.040
PFB54	SPFB54	3.0	7.0	0.250	0.471	0.070	0.187	0.312	0.045
PFB56	SPFB56	4.0	10.0	0.312	0.643	0.090	0.250	0.375	0.045
PFB58	SPFB58	5.0	14.0	0.375	0.786	0.110	0.312	0.500	0.078
PFB60	SPFB60	8.0	18.0	0.500	1.100	0.161	0.437	0.688	0.110

**Ball Plungers Stainless Steel Ball – Light Force**

Steel	Stainless Steel	End Force Lbs		O.D.					
		Initial	Final	A	B	C	D	E	F
PFB47	SPFB47	0.4	1.3	0.125	0.252	0.035	0.094	0.187	0.032
PFB51	SPFB51	1.0	2.5	0.188	0.394	0.058	0.156	0.250	0.040
PFB53	SPFB53	1.5	3.5	0.250	0.471	0.070	0.187	0.312	0.045
PFB55	SPFB55	2.0	5.0	0.312	0.643	0.090	0.250	0.375	0.045
PFB57	SPFB57	2.5	7.0	0.375	0.786	0.110	0.312	0.500	0.078
PFB59	SPFB59	4.0	9.0	0.500	1.100	0.161	0.437	0.688	0.110

**Ball Plungers Nylon Ball – Heavy Force**

Steel	Stainless Steel	End Force Lbs		O.D.					
		Initial	Final	A	B	C	D	E	F
DPFB48	DSPFB48	0.75	2.5	0.125	0.252	0.035	0.094	0.187	0.032
DPFB52	DSPFB52	2.0	5.0	0.188	0.394	0.058	0.156	0.250	0.040
DPFB54	DSPFB54	3.0	7.0	0.250	0.471	0.070	0.187	0.312	0.045
DPFB56	DSPFB56	4.0	10.0	0.312	0.643	0.090	0.250	0.375	0.045
DPFB58	DSPFB58	5.0	14.0	0.375	0.786	0.110	0.312	0.500	0.078
DPFB60	DSPFB60	8.0	18.0	0.500	1.100	0.161	0.437	0.688	0.110

**Ball Plungers Nylon Ball – Light Force**

Steel	Stainless Steel	End Force Lbs		O.D.					
		Initial	Final	A	B	C	D	E	F
DPFB47	DSPFB47	0.4	1.3	0.125	0.252	0.035	0.094	0.187	0.032
DPFB51	DSPFB51	1.0	2.5	0.188	0.394	0.058	0.156	0.250	0.040
DPFB53	DSPFB53	1.5	3.5	0.250	0.471	0.070	0.187	0.312	0.045
DPFB55	DSPFB55	2.0	5.0	0.312	0.643	0.090	0.250	0.375	0.045
DPFB57	DSPFB57	2.5	7.0	0.375	0.786	0.110	0.312	0.500	0.078
DPFB59	DSPFB59	4.0	9.0	0.500	1.100	0.161	0.437	0.688	0.110