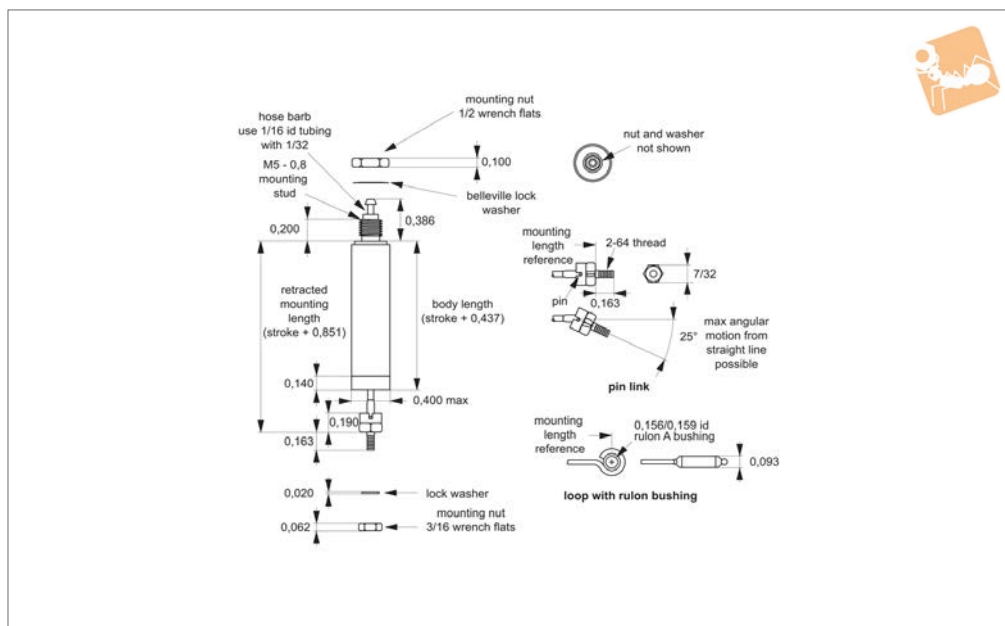




Actuator 0,22" bore

Cylinders



L4590

CYLINDERS

Material

Graphite carbon piston.
Annealed borosilicate glass cylinder.
Precision fire-polished bore.
Stainless steel piston rod (AISI 304).
Shock resistant rubber case.

Technical Notes

Piston area = 0.038 in² (24.54mm²)
Pressure range = full vacuum - 125 psi (0.86 MPa)
Force factor:
Piston area x pressure = output force.

Max force = 21.13N (at 0.86 MPa)
Minimum pressure differential required for actuation = 0.05 psi (345 Pa)
Friction coefficient = 0.2
Force without side load typically 0.5% - 1.5% of load.
Operating temperature range: -55°C to 150°C.
If operating at temperatures about +70°C, please advise when placing order.

Mounting data:

Suggested mounting bracket thickness = 0.050" - 0.100" (1.27mm - 2.54mm).
Mounting nut torque:
Head = 2-4 in-lb (0.23-0.45 Nm).
Rod end = 1-3 in-lb (0.11-0.34 Nm).

*Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.038mm).

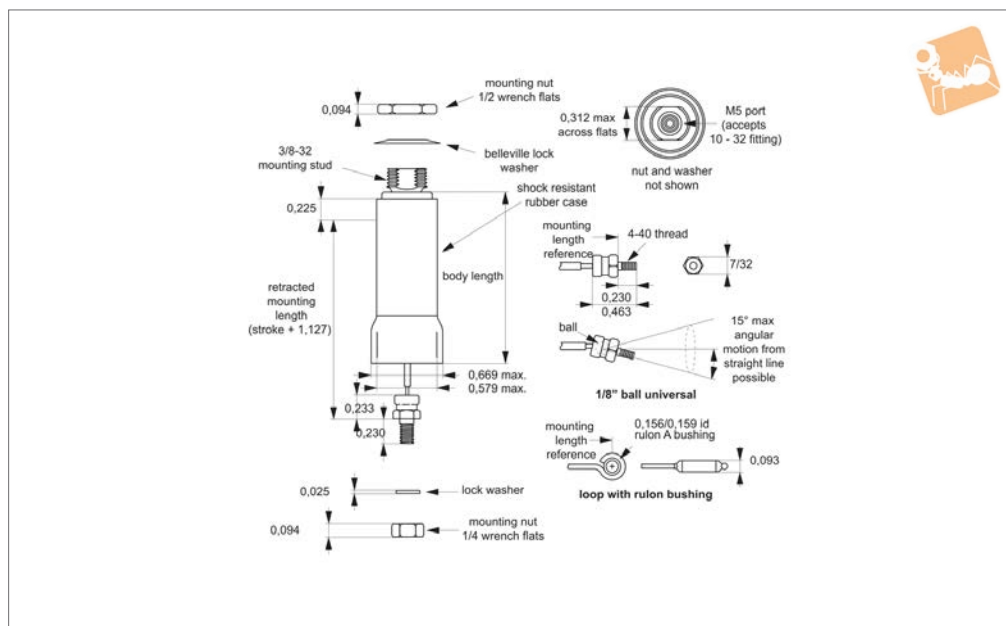
Important Notes

Please see technical pages for information on end linkages.

Order No.	Stroke	Rod end linkage	Bore dia.	Leak at 65psi max. SL/min	Leak at 125 psi max. SL/min	Body length
L4590.A0500	0,5"	Pin	0,22"	0.19	0.57	0,916"
L4590.A1000	1,0"	Pin	0,22"	0.19	0.57	1,416"
L4590.A1500	1,5"	Pin	0,22"	0.19	0.57	1,916"
L4590.A2000	2,0"	Pin	0,22"	0.19	0.57	2,416"
L4590.B0500	0,5"	Loop	0,22"	0.19	0.57	0,916"
L4590.B1000	1,0"	Loop	0,22"	0.19	0.57	1,416"
L4590.B1500	1,5"	Loop	0,22"	0.19	0.57	1,916"
L4590.B2000	2,0"	Loop	0,22"	0.19	0.57	2,416"



L4592



Material

Graphite carbon piston.
Annealed borosilicate glass cylinder.
Precision fire-polished bore.
Stainless steel piston rod (AISI 304).
Shock resistant rubber case.

Technical Notes

Piston area = 0.701 in² (452.25mm²)
Pressure range = full vacuum - 100 psi (0.69 MPa)
Force factor:
Piston area x pressure = output force.

Max force = 46.83N (at 0.69 MPa)
Minimum pressure differential required for actuation = 0.05 psi (345 Pa)
Friction coefficient = 0.2
Force without side load typically 0.5% - 1.5% of load.
Operating temperature range: -55°C to 150°C.
If operating at temperatures about +70°C, please advise when placing order.

Mounting data:

Mounting hole:
Round 0.375" (10mm)
Suggested mounting bracket thickness = 0.060" - 0.125" (1.52mm - 3.18mm).
Mounting nut torque:
Head = 4-8 in-lb (0.45-0.90 Nm).
Rod end = 2-5 in-lb (0.23-0.56 Nm).
Fitting = 12 in-lb max

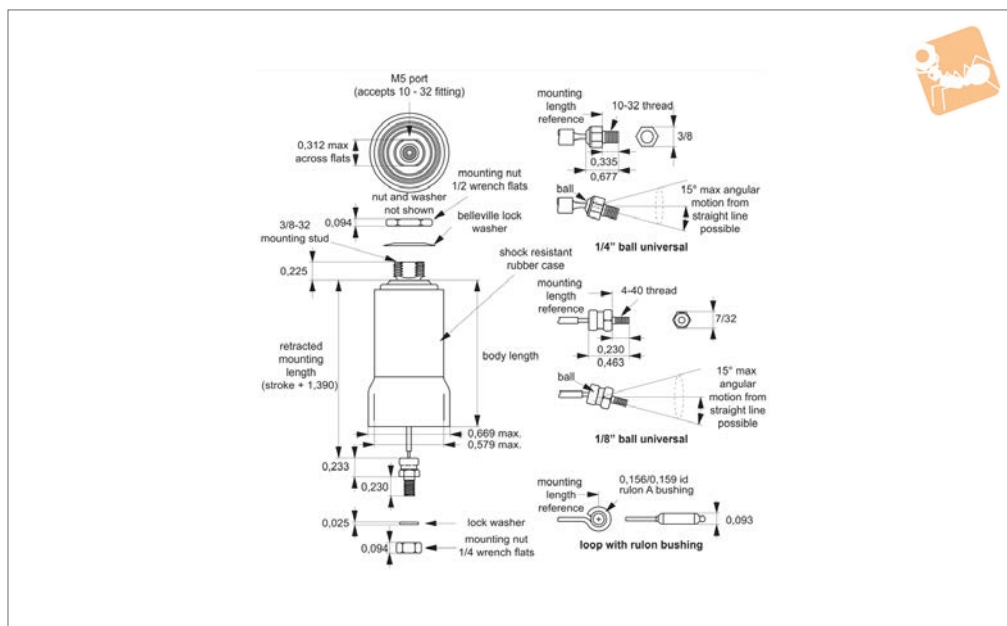
*Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.038mm).

Order No.	Stroke	Rod end linkage	Bore dia.	Leak at 50 psi max. SL/min	Leak at 100 psi max. SL/min	Body length
L4592.A0500	0,5"	1/8" Ball	0,366"	0.36	1.17	1,092"
L4592.A1000	1,0"	1/8" Ball	0,366"	0.36	1.17	1,492"
L4592.A1500	1,5"	1/8" Ball	0,366"	0.36	1.17	2,092"
L4592.A2000	2,0"	1/8" Ball	0,366"	0.36	1.17	2,492"
L4592.A3000	3,0"	1/8" Ball	0,366"	0.36	1.17	3,492"
L4592.A4000	4,0"	1/8" Ball	0,366"	0.36	1.17	4,492"
L4592.B0500	0,5"	Loop	0,366"	0.36	1.17	1,092"
L4592.B1000	1,0"	Loop	0,366"	0.36	1.17	1,592"
L4592.B1500	1,5"	Loop	0,366"	0.36	1.17	2,092"
L4592.B2000	2,0"	Loop	0,366"	0.36	1.17	2,592"
L4592.B3000	3,0"	Loop	0,366"	0.36	1.17	3,592"
L4592.B4000	4,0"	Loop	0,366"	0.36	1.17	4,592"



Actuator 0,627" bore

Cylinders



L4594

CYLINDERS

Material

Graphite carbon piston.
Annealed borosilicate glass cylinder.
Precision fire-polished bore.
Stainless steel piston rod (AISI 304) or
Aluminium 2024-T4.
Shock resistant rubber case.

Technical Notes

Piston area = 0.309 in² (199.20mm²)
Pressure range = full vacuum - 100 psi
(0.69 MPa)
Force factor:
Piston area x pressure = output force.
Max force = 137.45N (at 0.69 MPa)

Minimum pressure differential required for
actuation = 0.05 psi (345 Pa)
Friction coefficient = 0.2
Force without side load typically 0.5% -
1.5% of load.
Operating temperature range: -55°C to
150°C.
If operating at temperatures about +70°C,
please advise when placing order.

Mounting data:

Mounting hole:

Rectangular: 0.312" x 0.375" (8mm x
10mm)

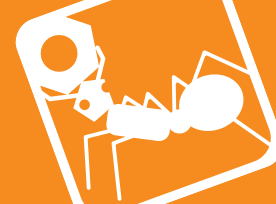
Round: 0.375" (10mm)
Suggested mounting bracket thickness =
0.060" - 0.125" (1.52mm - 3.18mm).
Mounting nut torque:
Head = 4-8 in-lb (0.45-0.90Nm).
Rod end = 2-5 in-lb (0.23-0.56 Nm).
Fitting = 12 in-lb max.

*Full stroke is obtained with customer held
mounting tolerance of ±0.015"
(0.038mm).

Important Notes

Stainless steel piston rod not for use above
35 psi.

Order No.	Stroke	Rod end linkage	Piston type	Bore dia.	Leak at 50 psi max. SL/min	Leak at 100 psi max. SL/min	Body length
L4594.A0500	0,5"	1/8 Ball	Stainless	0,627"	-	-	1,255"
L4594.A1000	1,0"	1/8 Ball	Stainless	0,627"	-	-	1,755"
L4594.A1500	1,5"	1/8 Ball	Stainless	0,627"	-	-	2,255"
L4594.A2000	2,0"	1/8 Ball	Stainless	0,627"	-	-	2,755"
L4594.A3000	3,0"	1/8 Ball	Stainless	0,627"	-	-	3,755"
L4594.A4000	4,0"	1/8 Ball	Stainless	0,627"	-	-	4,755"
L4594.A5000	5,0"	1/8 Ball	Stainless	0,627"	-	-	5,755"
L4594.A6000	6,0"	1/8 Ball	Stainless	0,627"	-	-	6,755"
L4594.B0500	0,5"	Loop	Stainless	0,627"	-	-	1,255"
L4594.B1000	1,0"	Loop	Stainless	0,627"	-	-	1,755"
L4594.B1500	1,5"	Loop	Stainless	0,627"	-	-	2,255"
L4594.B2000	2,0"	Loop	Stainless	0,627"	-	-	2,755"
L4594.B3000	3,0"	Loop	Stainless	0,627"	-	-	3,755"
L4594.B4000	4,0"	Loop	Stainless	0,627"	-	-	4,755"
L4594.B5000	5,0"	Loop	Stainless	0,627"	-	-	5,755"
L4594.B6000	6,0"	Loop	Stainless	0,627"	-	-	6,755"
L4594.E0500	0,5"	1/4 Ball	Aluminium	0,627"	0.74	2.78	1,300"
L4594.E1000	1,0"	1/4 Ball	Aluminium	0,627"	0.74	2.78	1,800"
L4594.E1500	1,5"	1/4 Ball	Aluminium	0,627"	0.74	2.78	2,300"
L4594.E2000	2,0"	1/4 Ball	Aluminium	0,627"	0.74	2.78	2,800"
L4594.E3000	3,0"	1/4 Ball	Aluminium	0,627"	0.74	2.78	3,800"
L4594.E4000	4,0"	1/4 Ball	Aluminium	0,627"	0.74	2.78	4,800"

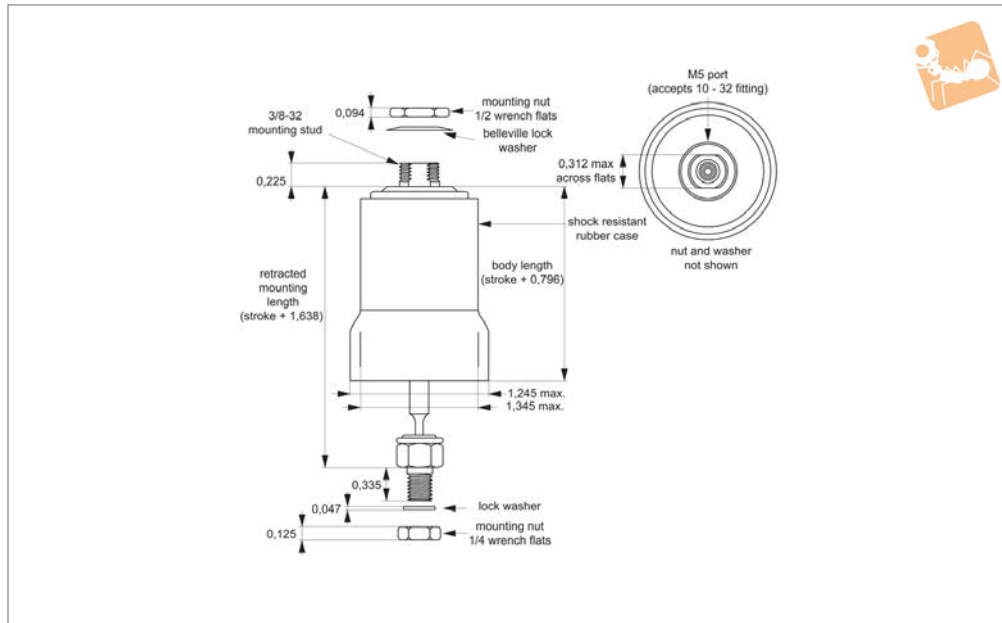


Order No.	Stroke	Rod end linkage	Piston type	Bore dia.	Leak at 50 psi max. SL/min	Leak at 100 psi max. SL/min	Body length
L4594.E5000	5,0"	1/4 Ball	Aluminium	0,627"	0.74	2.78	5,800"
L4594.E6000	6,0"	1/4 Ball	Aluminium	0,627"	0.74	2.78	6,800"



Actuator 0,945" bore

Cylinders



L4596

CYLINDERS

Material

Graphite carbon piston.
Annealed borosilicate glass cylinder.
Precision fire-polished bore.
Aluminium 2024-T4 piston rod.
Shock resistant rubber case.

Technical Notes

Piston area = 0.701 in² (452.25mm²)
Pressure range = full vacuum - 100 psi (0.69 MPa)
Force factor:
Piston area x pressure = output force.
Max force = 312.05N (at 0.69 MPa)

Minimum pressure differential required for actuation = 0.05 psi (345 Pa)
Friction coefficient = 0.2
Force without side load typically 0.5% - 1.5% of load.
Operating temperature range: -55°C to 150°C.
If operating at temperatures about +70°C, please advise when placing order.

Mounting data:
Mounting hole:
Rectangular: 0.312" x 0.375" (8mm x

10mm)
Round: 0.375" (10mm).

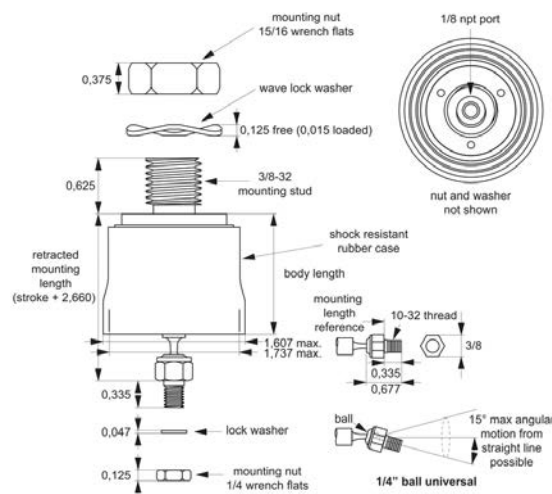
Suggested mounting bracket thickness = 0.060" - 0.125" (1.52mm - 3.18mm).
Mounting nut torque:
Head = 4-8 in-lb (0.45-0.90 Nm).
Rod end = 5-15 in-lb (0.56-1.70 Nm)
Fitting = 12 in-lb max.

*Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.038mm).

Order No.	Stroke	Rod end linkage	Bore dia.	Leak at 50 psi max. SL/min	Leak at 100 psi max. SL/min	Body length
L4596.0500	0,5"	1/4" Ball	0,945"	1.06	5.60	1,296"
L4596.1000	1,0"	1/4" Ball	0,945"	1.06	5.60	1,796"
L4596.2000	2,0"	1/4" Ball	0,945"	1.06	5.60	2,796"
L4596.3000	3,0"	1/4" Ball	0,945"	1.06	5.60	3,796"
L4596.4000	4,0"	1/4" Ball	0,945"	1.06	5.60	4,796"
L4596.5000	5,0"	1/4" Ball	0,945"	1.06	5.60	5,796"
L4596.6000	6,0"	1/4" Ball	0,945"	1.06	5.60	6,796"



L4598



Material

Graphite carbon piston.
Annealed borosilicate glass cylinder.
Precision fire-polished bore.
Stainless steel piston rod (AISI 304).
Shock resistant rubber case.

Technical Notes

Piston area = 1.288 in² (830.97mm²)
Pressure range = full vacuum - 100 psi (0.69 MPa)
Force factor:
Piston area x pressure = output force.

Max force = 573.37N (at 0.69 MPa)
Minimum pressure differential required for actuation = 0.05 psi (345 Pa)
Friction coefficient = 0.2
Force without side load typically 0.5% - 1.5% of load.
Operating temperature range: -55°C to 150°C.
If operating at temperatures about +70°C, please advise when placing order.

Mounting data:

Mounting hole:
Round: 0.625" (16mm).
Suggested mounting bracket thickness = 0.250" max (6.35mm).
Mounting nut torque:
Head = 40-60 in-lb (4.5-6.8 Nm).
Rod end = 5-15 in-lb (0.56-1.70 Nm).

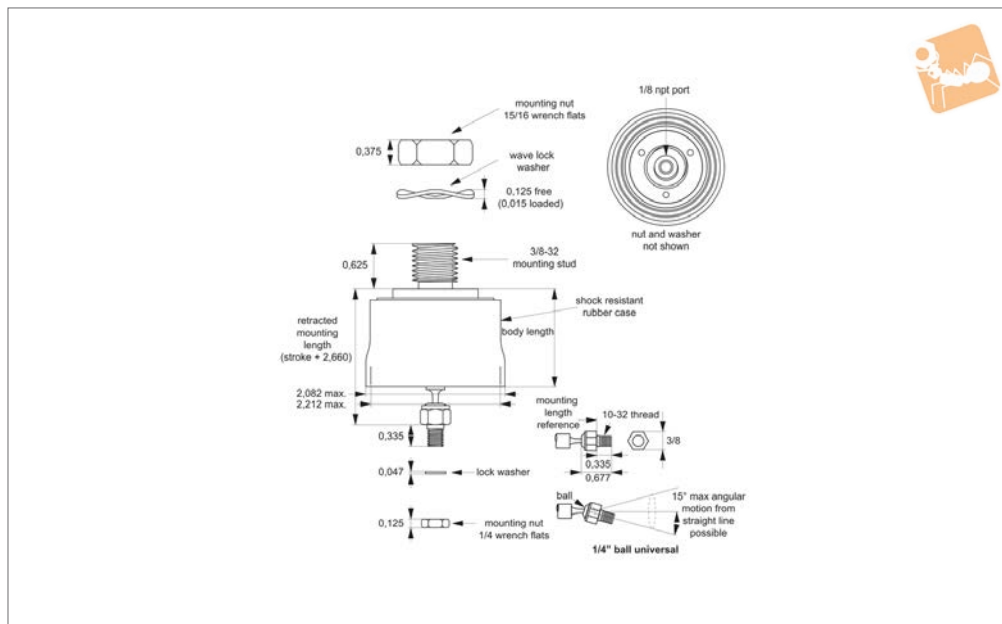
*Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.038mm).

Order No.	Stroke	Rod end linkage	Bore dia.	Leak at 50 psi max. SL/min	Leak at 100 psi max. SL/min	Body length
L4598.0500	0,5"	1/4" Ball	1,281"	2.12	9.6	1,725"
L4598.1000	1,0"	1/4" Ball	1,281"	2.12	9.6	2,225"
L4598.2000	2,0"	1/4" Ball	1,281"	2.12	9.6	3,225"
L4598.3000	3,0"	1/4" Ball	1,281"	2.12	9.6	4,225"
L4598.4000	4,0"	1/4" Ball	1,281"	2.12	9.6	5,225"
L4598.5000	5,0"	1/4" Ball	1,281"	2.12	9.6	6,225"
L4598.6000	6,0"	1/4" Ball	1,281"	2.12	9.6	7,225"



Actuator 1.75" bore

Cylinders



L4600

CYLINDERS

Material

Graphite carbon piston.
Annealed borosilicate glass cylinder.
Precision fire-polished bore.
Stainless steel piston rod (AISI 304).
Shock resistant rubber case.

Technical Notes

Piston area = 2.405 in² (1551.61mm²)
Pressure range = full vacuum - 100 psi (0.69 MPa)
Force factor:
Piston area x pressure = output force.

Max force = 1070.61N (at 0.69 MPa)
Minimum pressure differential required for actuation = 0.05 psi (345 Pa)
Friction coefficient = 0.2
Force without side load typically 0.5% - 1.5% of load.
Operating temperature range: -55°C to 150°C.
If operating at temperatures about +70°C, please advise when placing order.

Mounting data:

Mounting hole:
Round: 0.625" min (16mm).
Suggested mounting bracket thickness = 0.250" max (6.35mm).
Mounting nut torque:
Head = 40-60 in-lb (4.5-6.8 Nm).
Rod end = 5-15 in-lb (0.56-1.70 Nm).

* Full stroke is obtained with customer held mounting tolerance of ±0.015" (0.038mm).

Order No.	Stroke	Rod end linkage	Bore dia.	Leak at 50 psi max. SL/min	Leak at 100 psi max. SL/min	Body length
L4600.0500	0,5"	1/4" Ball	1,75"	3.6	15.0	1,697"
L4600.1000	1,0"	1/4" Ball	1,75"	3.6	15.0	2,197"
L4600.2000	2,0"	1/4" Ball	1,75"	3.6	15.0	3,197"
L4600.3000	3,0"	1/4" Ball	1,75"	3.6	15.0	4,197"
L4600.4000	4,0"	1/4" Ball	1,75"	3.6	15.0	5,197"
L4600.5000	5,0"	1/4" Ball	1,75"	3.6	15.0	6,197"
L4600.6000	6,0"	1/4" Ball	1,75"	3.6	15.0	7,197"