

Kap 17.5 Trycktest jämförelse

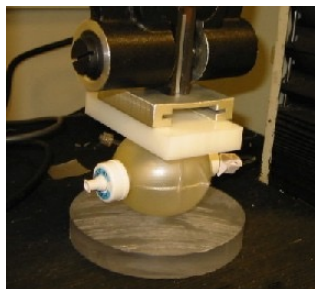
Elastomeric Pump Compression Test Comparison

Summary

The Homepump Eclipse incorporates a soft-shell design that offers numerous advantages to the caregiver and patient. However there may be a concern that a soft shell is less rugged as compared to other pumps incorporating a rigid outer shell. To demonstrate the robustness of the Homepump Eclipse soft-shell design, three units of Homepump Eclipses, 100 ml size, and three units of Baxter Infusors, 100 ml size, were compressed until point of failure. The Homepump Eclipse reached an average of 506 lbs (230 kg) before leakage occurred at the O-rings (note that the elastomeric layers did not burst). The Baxter Infusors elastomeric bladder burst at an average of 372 lbs (169 kg).

Method

An Instron instrument Model 1101 was used to apply and measure forces. The Instron was run at 2 inches (5.1 cm) per minute with a 1,000 lb load cell. The pumps were filled with 100 ml of water and compressed between two flat plates until the pump reservoir integrity was violated. 3 units of Homepump Eclipse, 100 ml size, and 3 units of Baxter Infusor, 100 ml size, were tested.



Homepump



Eclipse Baxter



Infusor Instron

Results

The results were as follows:

Homepump Eclipse	Force (lbs)	Failure mode	Baxter Infusor	Force (lbs)	Failure mode
#1	520	Leak at O-ring	#1	421	Bladder burst
#2	497	Leak at O-ring	#2	400	Bladder burst
#3	501	Leak at O-ring	#3	294	Bladder burst
Average	506			372	

Conclusion

The Homepump Eclipse is more resistant to failure under compression than the Baxter Infusor, even though the Homepump Eclipse pump incorporates a soft-shell design while the Baxter Infusor has a rigid hard outer shell.

To put the force in perspective, the test method is equivalent to someone of equivalent weight standing fully, not sitting, on the pumps. Thus the Homepump Eclipse may withstand a person of over 500 lbs balanced with one foot on the pump.

March 12, 2002