

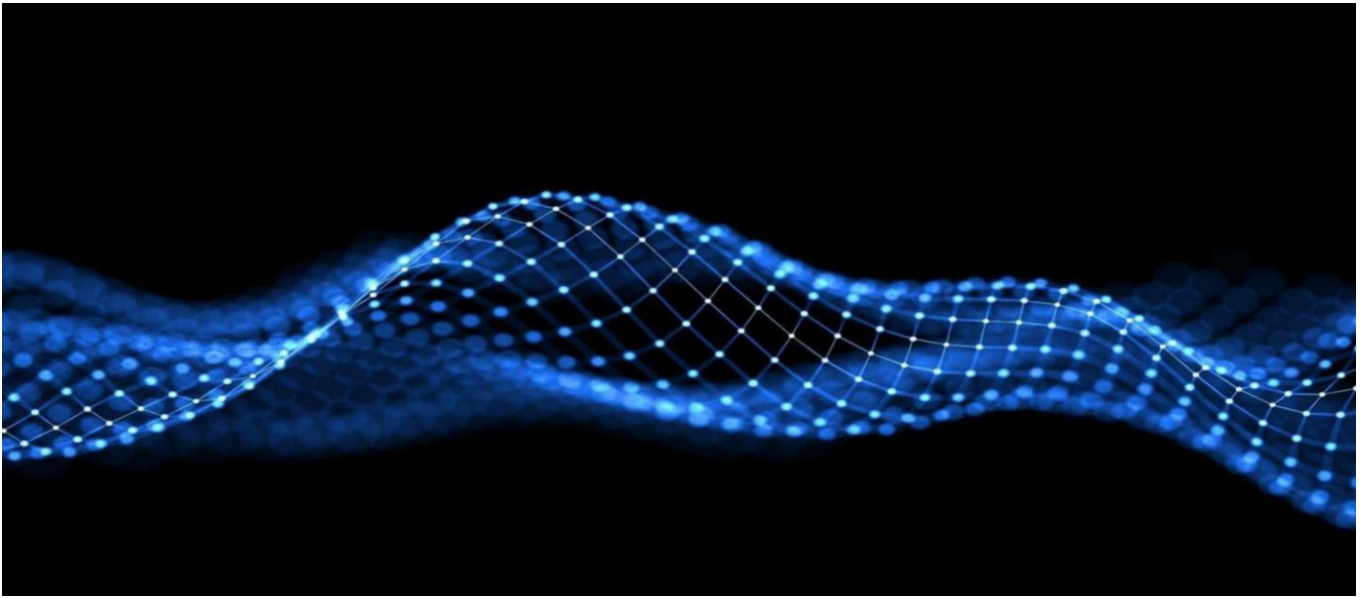
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SEALING SOLUTIONS

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SEALING SYSTEMS IN GAS SPRINGS



Material Introduction



HMTPU, as an outstanding representative of injection grade thermoplastic polyurethane elastomers, has set a new benchmark in the field of high performance injection molded products with its unique and outstanding performance. Compared with traditional polyester TPU, HMTPU exhibits significant advantages, meeting the urgent market demand for high-quality and high performance materials.

HMTPU has high wear resistance characteristics, and its wear resistance far exceeds that of ordinary materials. Even in long-term use and frequent friction environments, it can maintain the integrity and aesthetics of the product, greatly extending its service life.

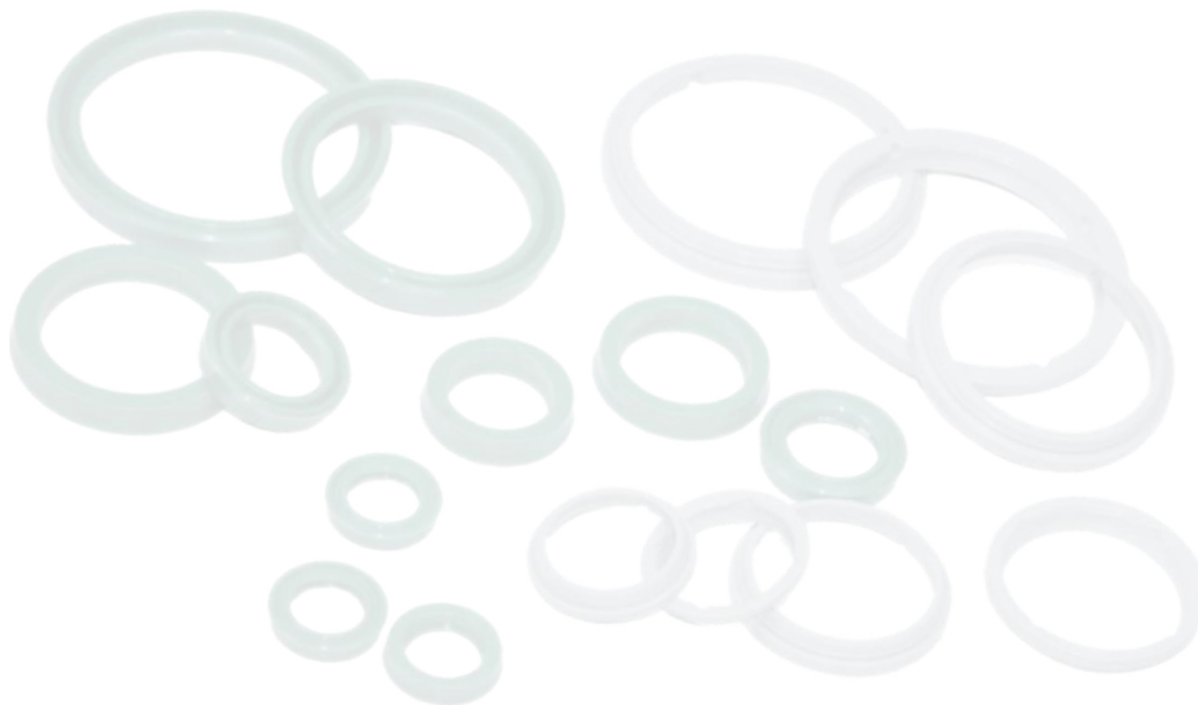
High strength is another highlight of HMTPU. It has excellent tensile strength and tear strength, and can withstand large external forces and impacts, ensuring the stability and reliability of the product in complex stress environments.

The characteristic of low compression permanent deformation enables HMTPU to maintain its original shape and size even after prolonged compression, which is particularly important for injection molded products that require precise size and shape preservation.

HMTPU has excellent hydrolysis resistance, even in humid or water environments , it can maintain stable physical and chemical properties, and is not easily hydrolyzed or degraded, thereby extending the product's service life and stability.

The excellent temperature resistance of HMTPU enables it to maintain stable across a wide temperature range, ensuring the normal use and performance of products in both high and low temperature environments.

The excellent dynamic mechanical properties of HMTPU enable it to perform well under dynamic loads, quickly respond to changes in external forces, and maintain the stability and flexibility of the product. This characteristic is particularly important for injection molded products that require frequent dynamic stress.



Advantages of Production Process

One-shot molding process for overall injection

Our company adopts a one-time integral injection molding process, which has good product stability and avoids the quality risks and instability caused by traditional secondary lip cutting, such as uneven thickness, angle deviation, and large dimensional errors.

High-end precision injection molding machine

Our injection molding machine, which we take pride in, is equipped with imported high-end precision equipment, achieving ultimate precision management of temperature, pressure, and feed control. This series of high-tech configurations not only ensures that every detail in the production process is strictly monitored, but also achieves an unprecedented level of stable product quality. This precise control is the cornerstone of product quality assurance and a reflection of our technical strength.

Leading injection mold technology and structural principles

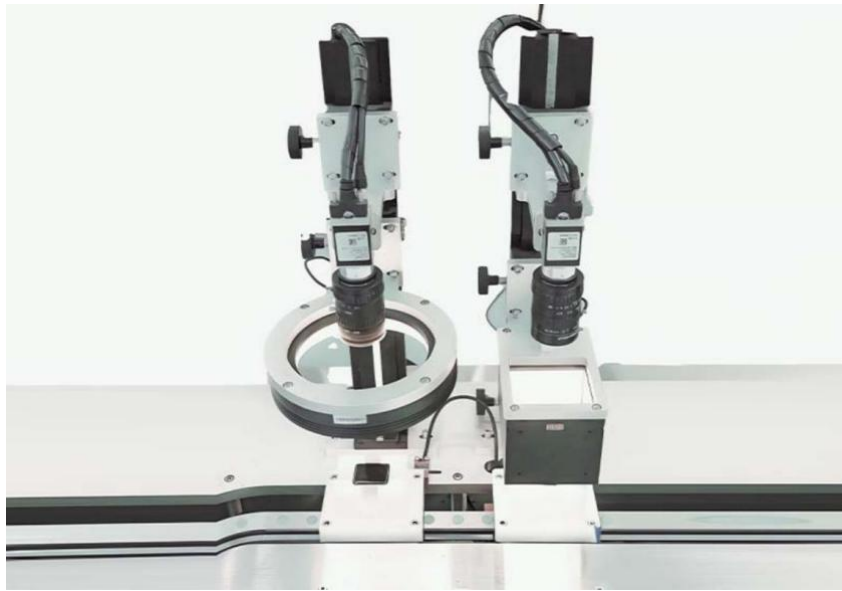
We have adopted industry-leading injection mold technology and structural principles, especially in the design of the mold's runner and gate, where we have achieved unparalleled precision control. By optimizing the flow channel design, we ensure a smoother and more uniform flow of plastic melt in the mold, effectively avoiding product defects caused by uneven flow. Meanwhile, the precise gate design further enhances the accuracy and stability of plastic melt entering the mold cavity, laying a solid foundation for the improvement of product quality.

Product quality under dual precise control

The dual precise control of injection molding machines and molds enables us to produce products that are not only of stable and reliable quality, but also demonstrate excellent craftsmanship in details. Whether in terms of appearance, size, or performance, the product can meet or even exceed customer expectations. We firmly believe that only through continuous technological innovation and a production attitude of striving for excellence can we create greater value for customers and bring higher quality products to the market.

Quality Control

Strict inspection of materials: elongation at break, tensile strength, tear strength, compression deformation, rebound, etc. Adopting imported high-definition CCD visual inspection machine for full inspection to ensure the yield rate of shipped products.



(Inspection Equipment Diagram)



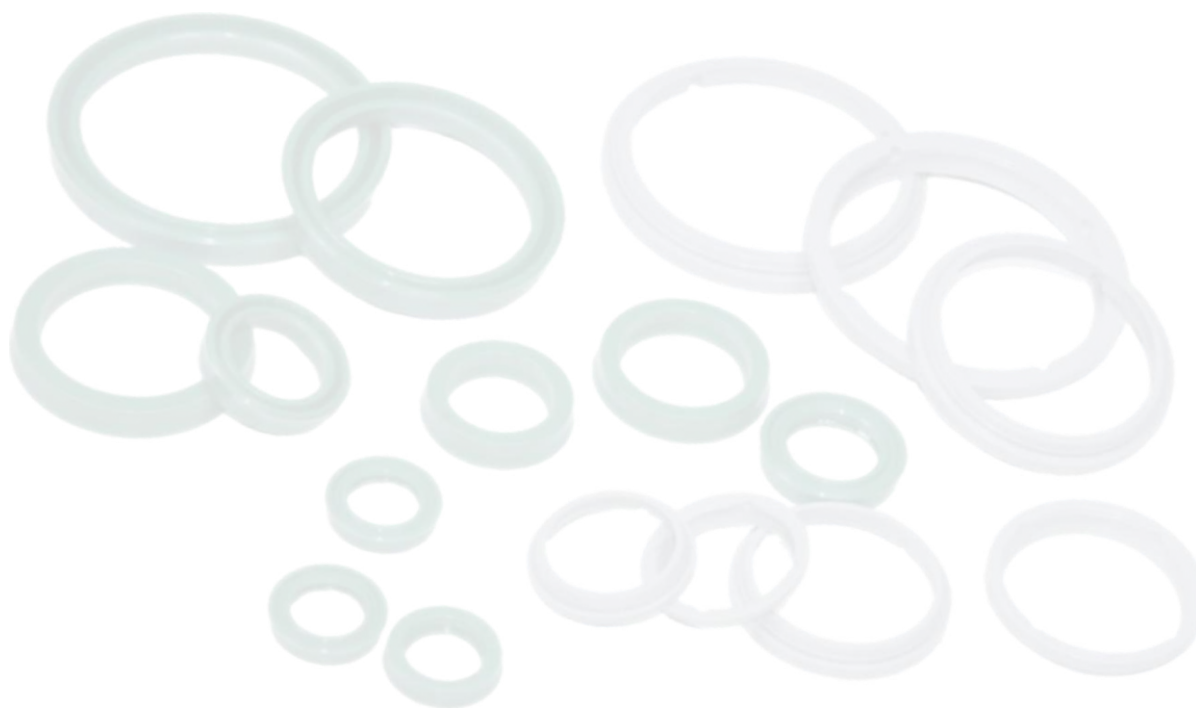
(Laboratory and related experimental equipment diagram)

Anti-Fatigue Test Data

Test data, due to different testing environments and conditions, the data is for reference only.

The following data has not reached the tolerance limit of the sealing ring (which can still be effectively tested), and the pressure drop is less than 10%.

Serial number	Seal ringspecification	Nitrogen gas spring model	Fatigue resistance cycles
RT	11*16*3.5/4	X170-080	121W
RT	15*21*4.5/5	X320-080	123W
RY	16*22*5/5.6	X350-063	130W
RY	20*26*5/5.6	X500-063	132W
RY	28*35.5*5/5.7	X1000-050	185W
RY	36*44*5.7/6.3	X1500-050	178W
RY	45*53*5.6/6.3	X2400-050	165W



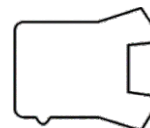
HM TPU93A Typical physical properties of HMTPU93A

Performance	Unit	Value	Experimental method
Hardness	Shore A	93±2	DIN ISO 7619-1
	Shore D	46±3	DIN ISO 7619-1
Elongation at break	%	≥520	DIN 53504
Tensile strength	MPa	≥54	DIN 53504
Tear strength	N/mm	≥108	DIN ISO 34-1
100% modulus	MPa	≥12	DIN 53504
300% modulus	MPa	≥18	DIN 53504
Rebound	%	≥50	DIN 52512
Compression set 70℃X22h	%	≤24	DIN ISO 815
Compression set 100℃X24h	%	≤32	DIN ISO 815
Abrasion	mm ³	≤24	DIN ISO 4649
Density	g/cm ³	1.19±0.02	DIN EN ISO 1183-1
Vicat softening point	℃	170	DIN EN ISO 306

HM TPU95A Typical physical properties of HM TPU95A

Performance	Unit	Value	Experimental method
Hardness	ShoreA	95±2	DIN 53505
	ShoreD	46±3	DIN 53505
Elongation at break	%	≥480	DIN 53504
Tensile strength	MPa	≥46	DIN 53504
Tear strength	N/mm	≥110	DIN 53515
100% modulus	MPa	≥11	DIN 53504
300% modulus	MPa	≥18	DIN 53504
Rebound	%	≥40	DIN 52512
Compression set 70℃X22h	%	≤28	DIN 53517
Compression set 100℃X24h	%	≤35	DIN 53517
Abrasion	mm ³	≤40	DIN 53516
Density	g/cm ³	1.19±0.02	DIN 53479
Vicat softening point	℃	170	DIN 53572

Product Structure and Specifications


RT

Serial number	Seal ring specification	Nitrogen gas spring model	
RT	6*10*3.5/4	R12	
RT	10*14*3.5/4	X170	
RT	10*14*3.7/4.2	X170	
RT	10*15*3.5/4	X170	
RT	11*16*3.2/3.5	X170	
RT	11*16*3.5/4	X170	*
RT	11*16*4/4.5	X170	
RT	12*17*3.5/4	CU4 420	
RT	12*18*4.5/5	CU4 420	
RT	15*20*4.5*5	X320	
RT	15*21*4/4.5	X320	
RT	15*21*4.5/5	X320	*
RT	15*22/4/4.5	X320	
RT	16*22*3.2/3.5	X350	
RT	16*22.5*4/4.5	X350	
RT	20*25*3.5/4	X500	
RT	20*26*3.2/3.5	X500	
RT	20*26.5*3.5/4	X500	
RT	25*31*3.2/3.5	X750	
RT	25*31*3.5/4	X750	
RT	28*34*3.2/3.5	X1000	
RT	28*34*3.5/4	X1000	
RT	28*35*4.5/5	X1000	
RT	28*36*3.5/4	X1000	

Product Structure and Specifications


RY

Serial number	Sealing Specification	Nitrogen gas spring model	
RY	16*22*5/5.6	X350	*
RY	20*26*5/5.6	X500	*
RY	25*31*5/5.6	X750	
RY	28*35.5*5/5.6	X1000	*
RY	30*38*5.7/6.3	X1200	
RY	36*44*5.7/6.3	X1500	*
RY	38*48*6/7	CU4 2900	
RY	45*53*5.6/6.3	X2400	*
RY	50*60*7.3/8	X3000	
RY	60*68*6.3/7	X4200	
RY	60*68*8/9	X4200	
RY	60*70*7/8	X4200	
RY	65*73*8/9	X5000	
RY	75*85*7/8	X6600	
RY	80*95*11.4/12.5	X7500	
RY	90*100*6.5/7.5	X9500	
RY	95*105*7/8	X10000	
RY	105*120*9/10	CU4 18300	
RY	130*145*9/10	X20000	

Product Structure and Specifications



Part Number	Wiper Specification	Nitrogen Gas Spring Model
P20	11*16.3*2	170
WP1	15*20*2	320
WP1	16*20*2	350
WP1	16*21.6*2.7	350
WP1	20*25.5*2.5	500
WP1	20*25*1.5	500
WP2	25*31*2.5	750
WP2	28*33*2.5	1000
WP2	36*43*2.8	1500
WP2	45*53*2.8	2400





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