



Polyether-based Thermoplastic Polyurethane (TPU)

U2150 <u>Ultrafl</u>ex®

www.mfpseals.com



Polyether-based Thermoplastic Polyurethane (TPU)



- A premium grade, specially formulated TPU.
- · Proprietary, aromatic polyether based.
- Performs in systems where hydrolysis is a known issue.
- Performs in working temperatures of -50°C to +110°C.
- High strength, low compression set.
- Consistent form retention and stability within the service temperature parameters.
- Explosive Decompression Resistant.
- Withstands long term exposure to oils, hydrolysis, chemicals, and abrasion.
- Good extrusion resistance at the higher temperatures.

- Derived from a hybrid polyether polyol backbone.
- Excellent hydrolytic stability.
- Low oil absorption.
- Impervious to microbial attack.
- For use in standard hydraulic oils.
- For use in bio and water based hydraulic oils.
- Exceptional rebound resilience, hydrolysis and abrasion resistance.
- High Flexibility at Lower Temperatures.
- Designed for consistent performance in a wide variety of conditions.

The seal profiles shown may only be readily available in certain sizes. Sizes that are not currently tooled will require lead times for development and testing of the new tooling. In most cases, other materials are available for each seal profile shown. *Consult with an MFP Seals Sales Representation or Authorized Distributor for more information on seal materials and currently available sizes.

The values shown are compiled from random tests taken from ongoing production. All data was established based on standard test-products according to ISO, DIN and ASTM standards, and can basically not be carried over to the completed seal.

All technical advice, services and recommendations rendered by Martin Fluid Power, or its affiliated companies are gratis. They are based on technical data which the seller believes to be reliable, and are intended to be used by persons having skill and know-how and ability to analyze the application where the product will be used and apply the information to it at their own discretion and risk. We cannot assume or accept any responsibility for results obtained or damages occurred from any installer's decisions or work, in whole or in part.

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Polyether-based Thermoplastic Polyurethane (TPU)



In 2014, MFP Seals formulated U2150 Ultraflex®, a proprietary aromatic polyether based, premium grade TPU. U2150 is designed to perform in hydraulic systems where hydrolysis is a known issue and working conditions may reach up to +110°C and as low as -50°C. U2150 offers high strength, low compression set, consistent form retention and stability within the service temperature parameters. U2150 is explosive decompression resistant and can withstand long term exposure to oils, hydrolysis, chemicals, and abrasion. It also demonstrates good extrusion resistance at the higher temperatures.

U2150 is derived from a hybrid polyether polyol backbone, offering excellent hydrolytic stability, has low oil absorption, and is impervious to microbial attack. This makes it a good choice for a wide range of seal applications in standard hydraulic oils as well as bio and water based hydraulic oils.

With exceptional rebound resilience, hydrolysis and abrasion resistance, and high flexibility at lower temperatures, U2150 was designed for seals that need to perform consistently in a wide variety of conditions.

Property	ASTM Method	Typical Value	
Hardness, Shore A	D2240	91	
Tensile Strength, psi	D412-06a, Die C	5,690	
Elongation @ Break, %	D412-06a, Die C	490	
Modulus			
@ 100% Elongation, psi	D412, Die C	1,590	
@ 300% Elongation, psi	D412, Die C	2,440	
Compression Set			
22 hours @ 70°C	D395-03, Method B	22.9%	
22 hours @ 100°C	D395-03, Method B	34.2%	
Temperature Range			
°F		-58 to +230	
°C		-50 to +110	

The seal profile, material type, pressure, temperature, speed and extrusion gap will affect extrusion resistance. For available sizes and extrusion gap information, please contact an MFP Seals sales representative or Authorized Distributor.



SEAL PROFILES AVAILABLE IN U2150

U2150



C/S

Expander - N6014



270° Profile

U2150

SEAL PROFILES AVAILABLE IN U2150







270° Profile

C/S

Seal - U2150, U2151



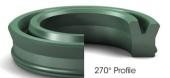
SEAL PROFILES AVAILABLE IN U2150

U2150



Seal Name

Piston U-Cup





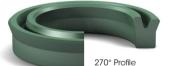
Compounds Available*

Seal - U2150, U2151



Metric Seal Name

Asymmetrical Piston Seal U-Cup





Compounds Available*

Seal - U2145, U2150, U2151, U4150, H2155





Asymmetrical Piston Seal U-Cup with Anti-Extrusion Ring





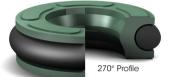
Compounds Available*

Seal - U2145, U2150, U2151, U4150, H2155

Anti-Ext. - M1001

Inch Metric Seal Name

CRX MCRX CRX Rod Seal® (2 PC.) - Normal & Wide Base





Compounds Available*

Seal - U2145, U2150, U2151, U4150,

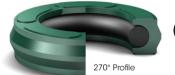
Expander - N6001



Metric Seal Name

CPX Pisto

CPX Piston Seal® (2 PC.) - Normal & Wide Base





Compounds Available*

Seal - U2145, U2150, U2151, U4150.

Expander - N6001

 Inch
 Metric
 Seal Name

 HPX
 MHPX
 HPX Piston Seal™ (2 P.C.)



Compounds Available*

Seal - U2150, H2155

U2150

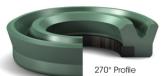
SEAL PROFILES AVAILABLE IN U2150





ric Seal Name

Rod Buffer Seal with Anti-Extrusion Ring





Compounds Available*

Seal - U2145, U2150, U2151, U4150, H2155

Anti-Ext. - M1001

× Inch Metri

Seal Name

AN Style Rod Wiper





Compounds Available*

Seal - U2145, U2150, U2151, U4150, H2155



Seal Name

D Style Rod Wiper



Compounds Available*

Seal - U2145, U2150, U2151, U4150, H2155 InchMetricSeal NameDMMDRWDM Style Rod Wiper





Compounds Available*

Seal - U2145, U2150, U2151, U4150, H2155



Seal Name

H Style Rod Wiper





Compounds Available*

Seal - U2145, U2150, U2151, U4150, H2155, CN80, VT90



Seal Name

Metric H Style Rod Wiper



Compounds Available*

Seal - U2145, U2150, U2151, U4150, H2155



SEAL PROFILES AVAILABLE IN U2150

U2150





The seal profile, material type, pressure, temperature, speed and extrusion gap will affect extrusion resistance. For available sizes and extrusion gap information, please contact an MFP Seals sales representative or Authorized Distributor.

QUICK REFERENCE - SEAL COMPOUND PROPERTIES URETHANE AND THERMOPLASTIC COMPOUNDS

Compound Name	Hardness	Material	Color	General Description	Temp. Range
U2145 - Ultraflex™ (TPU)	95 Shore A	Urethane	Yellow	Aromatic Polyester-based Thermoplastic Polyurethane	-53°C to +93°C -65°F to +200°F
U2150 - Ultraflex™ (TPU)	91 Shore A	Urethane	Dark Green	Aromatic Polyether-based Thermoplastic Polyurethane	-50°C to +110°C -58°F to +230°F
U2151 - Ultraflex™ (TPU)	95 Shore A	Urethane	Red	Aromatic Polyester-based Thermoplastic Polyurethane	-53°C to +120°C -65°F to +250°F
U4150 - Ultraflex™ (TPU)	92 Shore A	Urethane	Transparent Tan	PPDI based Thermoplastic Polyurethane *Intermittent exposure to +135°C (+275°F)	-43°C to +121°C -45°F to +250°F

Compound Name	Hardness	Material	Color	General Description	Temp. Range
H2155 - Hytrel® (TPE)	55 Shore D	Thermoplastic	Orange	Thermoplastic Polyester Elastomer	-54°C to +135°C -65°F to +275°F

Continued on next page.

For more detailed information on MFP Seals compounds, please contact an MFP Seals sales representative or Authorized Distributor.

In most cases Material Data Sheets are available for the compounds listed in this pamphlet.

QUICK REFERENCE - SEAL COMPOUND PROPERTIES ENGINEERED PLASTIC & RUBBER COMPOUNDS

Color

General Description

Butadiene Acrylonitrile Copolymer

UL Approved

Butadiene Acrylonitrile Copolymer

Temp. Range

-40°F to +212°F

-20°C to +120°C

-4°F to +248°F

-24°C to +150°C -11°F to +302°F

Compound Name

N6014 - NBR

N6023 - HNBR

Hardness

70 Shore A

88 Shore A

Material

Rubber

Rubber

M1000 - PEEK™	87 Shore D	Engineered Plastic	Tan	Virgin Polyether Ether Ketone; strong, high ductility, chemically resistant, medical & FDA compliant applications.	-56°C to +250°C -70°F to +482°F
M1001 - POM	82 Shore D	Engineered Plastic	Black	Acetal: Polyoxymethylene (POM) Excellent sliding and wear behavior.	-50°C to +100°C -58°F to +212°F
Compound Name	Hardness	Material	Color	General Description	Temp. Range
N6001 - NBR	70 Shore A	Rubber	Black	Butadiene Acrylonitrile Copolymer	-40°C to +100°C

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In most cases Material Data Sheets are available for the compounds listed in this pamphlet.

Black

Black





U2150 Ultraflex®

 $MFP_SBC_Guide_U2150_JUN18A$



Melbourne Sydney Newcastle Brisbane

HSA is the Exclusive
Authorized Distributor, in Australia,
of Hydraulic and Pneumatic
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