



# TMR<sup>®</sup> N<sub>2</sub> PRODUCT BULLETIN

Highly effective, low cost water removal systems for atmospheric breathing lubricant reservoirs.

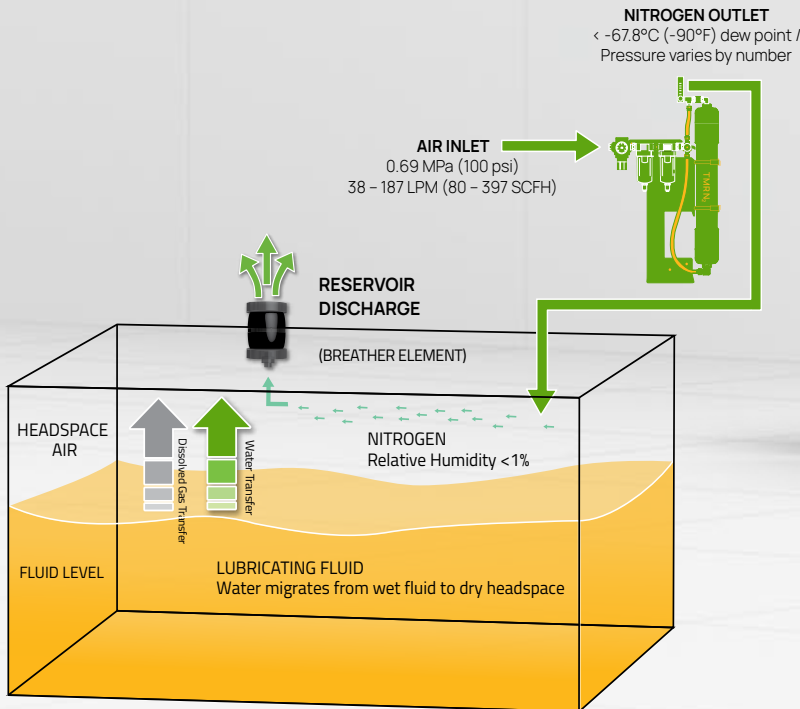


LUBRICANT CHEMISTRY MANAGEMENT



THE TMR<sup>®</sup> N<sub>2</sub> NITROGEN BLANKETING SYSTEM PROVIDES UNLIMITED CAPACITY TO REMOVE WATER AND ELIMINATE ATMOSPHERIC WATER INGRESSION.

TMR N<sub>2</sub> manages factors that accelerate oxidation lowering the rate of lubricant breakdown, reducing maintenance requirements and extending fluid life.



# FREE FLOWING NITROGEN BLANKETS

Water is the most common and damaging contaminant found in hydraulic and lubricating systems. Water can exist in 3 forms: free, dissolved and emulsified. The TMR N<sub>2</sub> cost effectively removes 3 forms of water from lubricants and hydraulic fluids through mass transfer which is a highly effective, non-mechanical process. Most water removal systems use heat, vacuum and pumps, which are all expensive to operate and maintain, to force the separation of water from the lubricant. The TMR N<sub>2</sub> system exploits the principle of chemical equilibrium to remove all types of water in a much more gentle, and energy efficient methodology.

In many applications, the primary mode of water ingress is atmosphere, which provides an unlimited source of water whenever the moisture content in the atmosphere is higher than in the lubricant. Atmospheric water ingress rates are typically low and constant, which lends itself perfectly to the TMR N<sub>2</sub> system. Using mechanical separation systems in this scenario would simply dehydrate the lubricant to an unsaturated state so that it can absorb more water from atmosphere. This creates an energy intensive cycle that fails to address the primary cause of water ingress.

## TMR N<sub>2</sub> FEATURES AND BENEFITS

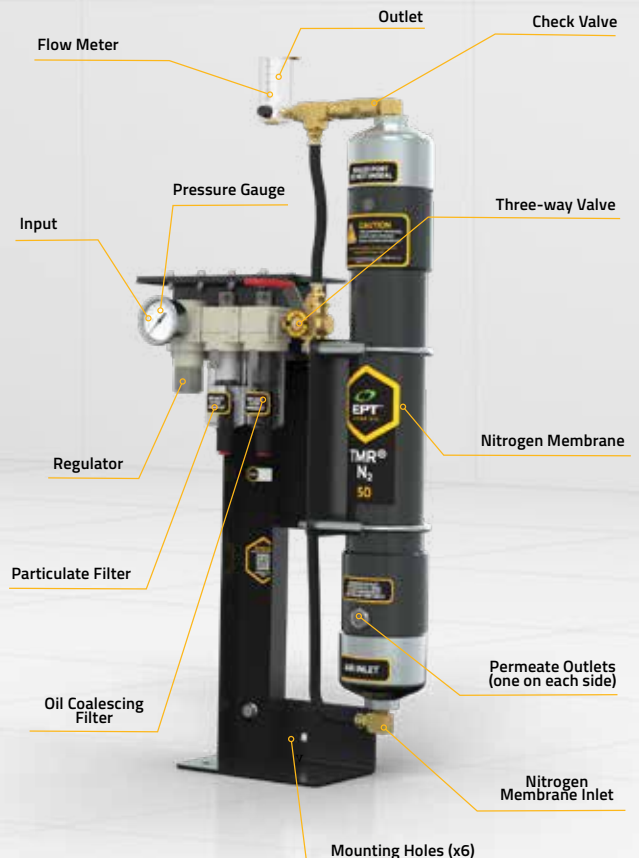
- High purity nitrogen (≥97%) is generated at the source providing unlimited capacity to reduce existing moisture
- Free flowing nitrogen is exhausted out the breather element or facility exhaust, reversing the typical flow configuration and eliminating one of the key ingress points for water and particulate contamination
- Eliminate the ingress of atmospheric water, particulate and metal ions through a free-flowing nitrogen blanket that in turn eliminates fluid contact with oxygen
- Water removal rates of up to 50 ppm per day, reducing the rate of lubricant breakdown
- TMR N<sub>2</sub> will recharge and extend the life of breather elements
- Eliminates lubricant contact with oxygen, reducing oxidation and promoting the removal of H<sub>2</sub>, CO, C<sub>2</sub>H<sub>4</sub> and other harmful breakdown gases
- Very low maintenance requirements
- **Immediate payback, high ROI**

## TMR N<sub>2</sub> SYSTEM SIZING

TMR N<sub>2</sub> systems are regulated, intrinsically safe and have a manually adjusted flow control valve with flow meter. They are designed to remove water and sized according to the headspace volume.

Reservoirs require a breather element and that other atmosphere access points are sealed.

TMR N<sub>2</sub> systems do not work in cases where high volume reservoir extraction fans are operating, but are very effective protecting oil systems during stand by operation when extraction fans are not in use.



## TMR N<sub>2</sub> SYSTEM SPECIFICATIONS

	601902	601903	601904
Dimension LxWxH	466 x 162 x 762 mm 18 <sup>3</sup> / <sub>8</sub> " x 6 <sup>3</sup> / <sub>8</sub> " x 30"	466 x 162 x 1217 mm 18 <sup>3</sup> / <sub>8</sub> " x 6 <sup>3</sup> / <sub>8</sub> " x 47 <sup>7</sup> / <sub>8</sub> "	499 x 168 x 1217 mm 19 <sup>5</sup> / <sub>8</sub> " x 6 <sup>5</sup> / <sub>8</sub> " x 47 <sup>7</sup> / <sub>8</sub> "
Shipping Dimension LxWxH	508 x 254 x 864 mm 20" x 10" x 34"	534 x 280 x 1296 mm 21" x 11" x 51"	534 x 280 x 1296 mm 21" x 11" x 51"
Shipping Weight	10 kg / 21 lb	20 kg / 44 lb	22 kg / 48 lb
Connections Inlet/Outlet FNPT	1/4"	1/4"	1/4"
Reservoir Volume	≤1,532 L / 400 gal	≤3,028 L / 800 gal	≤7,570 L / 2,000 gal
N2 Output - Manual Control with Flow Meter	0-25 LPM / 0-50 SCFH	0-25 LPM / 0-50 SCFH	0-50 LPM / 0-100 SCFH
Pre-Set Flow Rate	14 LPM / 30 SCFH	21 LPM / 45 SCFH	35 LPM / 75 SCFH
% N2 at Pre-set Flow Rate at 0.69 MPa/ 100 psi Air Temp. of 21 °C/70 °F	>97%	>97%	>97%
Air Consumption Max. at 0.69 MPa/100 psi	0-38 LPM / 0-80 SCFH	0-64 LPM / 0-136 SCFH	0-114 LPM / 0-241 SCFH

**Note:** Temperature of membrane must stay ≥24 °C/75 °F for optimal performance.  
Nitrogen recovery will be hindered if temperature averages ≤24 °C/75 °F.

## TMR N2 REPLACEMENT PARTS

	601902	601903	601904
Particulate Filter	602721	602721	602721
Oil Coalescer	602725	602725	602725
Pressure Gauge	601556	601556	601556
Replacement Membrane	601341	601551	601599



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