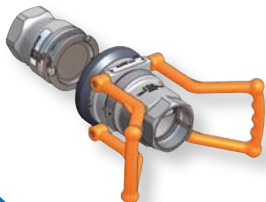




# Gas (LPG)

**DGCouplings®**  
Dry Gas Couplings



**Swivels**  
Swivel Joints



**SBCouplings®**  
Safety Break-away Couplings



# DGCouplings®

## Dry Gas Couplings

Dry Gas Couplings are used to prevent excess spillage. They protect people and property from dangerous and costly exposure by keeping hazardous liquids and vapors in-line and out of the environment.

Dry Gas Couplings are used at liquid or vapor transfer points where you do not want product loss. Using Dry Gas couplings will reduce the hazards typically found when handling/processing LPG

### Why use the Mann Tek DGCoupling

- Spillfree handling for loading and unloading tank trucks, rail tankers and tank containers.
- Minimization spillage and product loss keeps the environment free from Hazardous Vapors and Liquids.
- “Easy to Use” – design saves time and minimises health risks.
- Reliability and easy servicing saves your investment.
- Approved for safe handling of LPG - Propane (CAS 74-98-6, UN 1978) and Butane (CAS 106-97-8, UN1011). UN-classification 2.1 and similar applications.
- 3” and 4” is compatible with existing Dry Disconnect / Dry Break Couplings according to STANAG 3756.
- The 1” is a heavy duty vehicle filling nozzle according to EN 13760.
- Approvals according to the European Directives PED and ATEX and the international requirements ADR, RID, IMDG and TDT.



The Dry Gas Coupling is developed for connection and disconnection at higher pressure (1"-4" up to 25 bar).

**ATEX approved**



**II 2G**

# DGCoupling Applications

## 1" DGCouplings

Used as light & heavy duty vehicle filling nozzle (EN 13760)

Vapor recovery line



## 2" DGCouplings

Loading / unloading for bobtail tank trucks and intermediate bulk trucks

Vapour recovery line

Connecting pipelines



## 3" DGCouplings

3" and 2" DGC for top loading of LPG rail tanker. 3" couplings for liquid phase and 2" for vapour phase

3" and 2" DGC for sprayloading of both LPG rail tanker and Gas trucks.  
No vapour return.

3" and 2" DGC for bottomloading of both LPG rail tanker and Gas trucks.

3" couplings for liquid phase and 2" couplings for gas phase.



## 4" DGCouplings

Loading / unloading of ship tankers and rail tankers



# Why use the Dry Gas Couplings



## Traditional Acme connection

- Ca: 60 seconds to disconnect
- Special tool needed
- Operator exposed for vapours
- Risk of cold burns
- Spillage: min 500 ml



## Mann Tek Dry Gas Couplings

- Disconnected in seconds
- No tools needed
- Risk free handling
- No vapours
- Spillage: max 0.6 ml

## Calculation of Savings

The liquid release and the cost loss for 1.000.000 connections and disconnections in LPG logistics per year when 1 T LPG = 1000 \$ could be :

Coupling type	Ton LPG/Year loss		Cost for lost LPG
Dry Gas Couplings	0,175 T		175 \$
Traditional system (Acme threaded or flange to flange)	Min	250 T	250.000 \$
	Max	5000 T	5.000.000 \$

## Bennefits of using Dry Gas Couplings

- Minimum emissions
- Connects and disconnects under pressure and flow
- Removes human error elements
- Decrease the time to connect and disconnect both in daily use and in case of emergency.
- Return of the investment after few months
- Increase the net profit
- Environmentally friendly

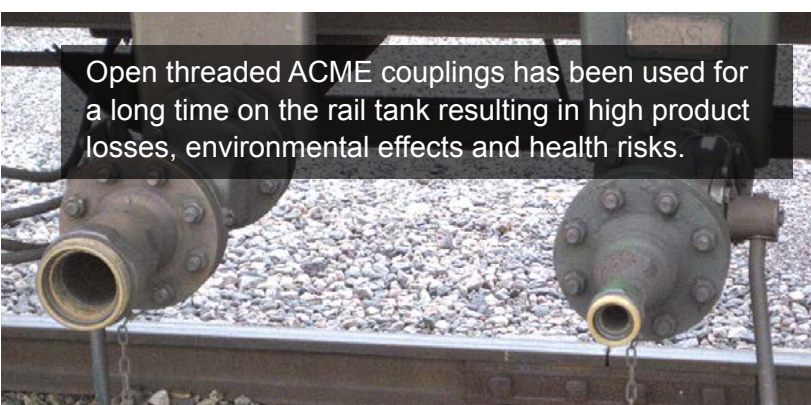


## Implementing The DGCoupling system

Loading hoses equipped with Mann Tek DGC Hose Unit permanently

Old Rail tanker equipped with Acme-type couplings

Dry Gas Tank units supplied with Acme-type threaded connections (adaptors) to be installed on the rail-tanker.



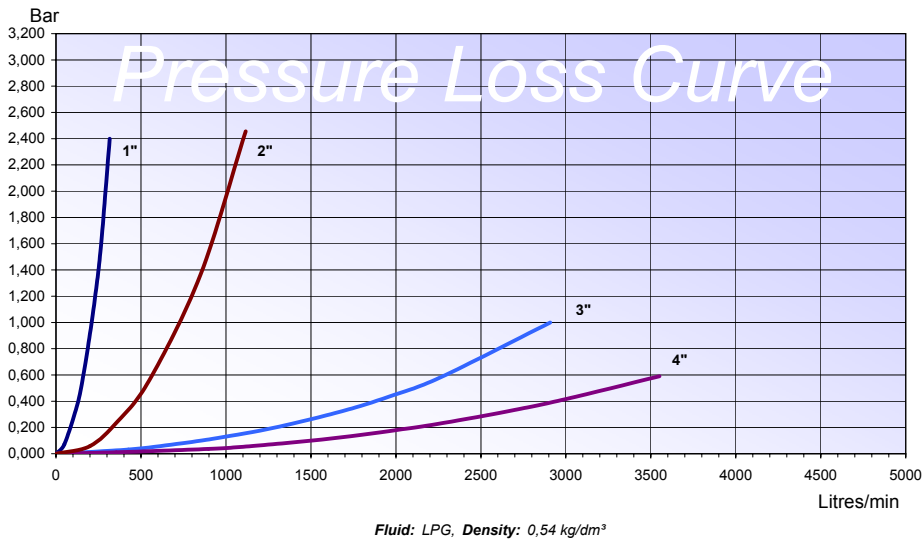
Open threaded ACME couplings has been used for a long time on the rail tank resulting in high product losses, environmental effects and health risks.



Acme-type threaded connections (adaptors).

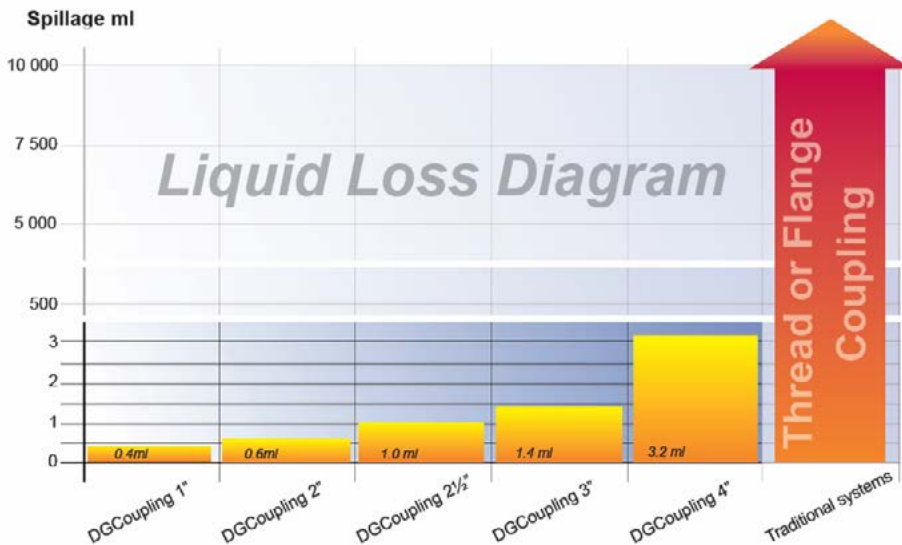


# Flow Diagram - Pressure Loss Curve

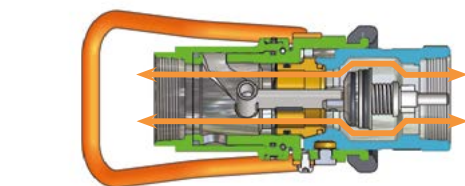


## Spillage diagram

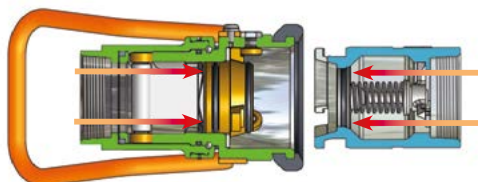
Comparison of liquid loss during disconnection for Dry Gas Couplings and traditional systems using open threaded couplings, or flange to flange connections. The diagram shows that liquid loss for traditional systems may be as much as 10.000 times more than when using Dry Gas Couplings.



## How it Works



**To connect**  
Push and turn - it's coupled  
- full flow



**To disconnect**  
Turn and pull - it's released  
- no spillage

## Technical Data

### Size:

1", 2", 3" and 4"

### Materials:

Gunmetal / Brass and  
Stainless Steel 316L  
SS-EN 10 272-1.4404+AT

### Seal:

FPM (Viton) or NBR (Nitrile)  
according to EN549 B2/H3  
other materials on request

### Temperature range:

-20°C (-4°F) to 80°C (176°F)  
(larger temperature range  
from -50°C (-58°F) up to  
+200°C (392 °F) is possible,  
depending on Seal material)

### Maximum Working pressure:

MWP PN 25.  
MAWP 300 psi

### Test Pressure:

38 bar  
450 psi

### Min. Burst Pressure:

125 bar / 1813 psi

### Safety Factor:

5:1

### End Connections:

Female and Male BSP / NPT,  
ACME, Witworth threads and  
flanged DIN and ANSI.

Other connections on request.