



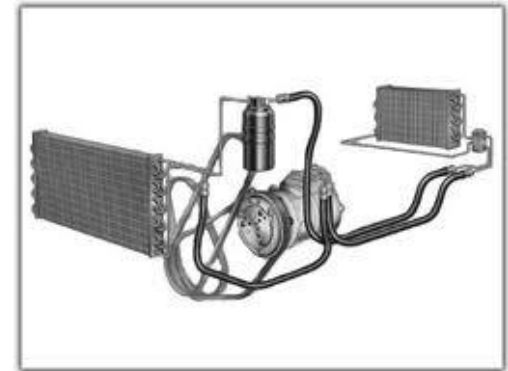
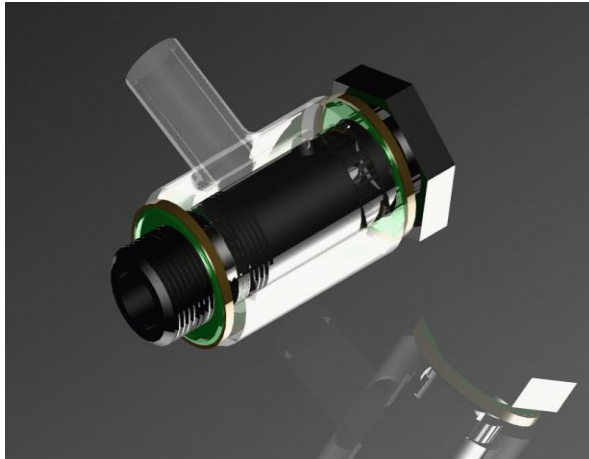
Fluid Connector Sealing Systems



Fluid Connector Sealing System



Generic Connectors



Fluid Connector Sealing System

Current Generic Sealing Systems

O Ring

Copper/ Aluminium Washers

Bonded Seals



Fluid Connector Sealing System

Alternative Sealing Systems

ADVANTAGES

O RING

Low Unit Cost

COPPER / ALUMINUM WASHERS

Perceived Low Cost

BONDED SEAL

Industrial Standard
Proven Technology
Pre-assembly

DISADVANTAGES

Machining Hardware
Difficult Assembly Control
Not Reusable

Work Harden
Low Pressure Only
Warranty Confidence
Thread Relaxation

Perceived Increase In Cost



Fluid Connector Sealing System

APPLICATIONS

POWER TRAIN

Sump Pan Seal
Oil Pressure Sender
Cam Cover Fasteners
Oil Feeds
Sensor Switches
Blanking Plugs
Turbo Oil Feed

FUEL SYSTEM

Spill Back Rail
Fuel Line Connections
Fuel Tank Connector

COOLANT SYSTEM

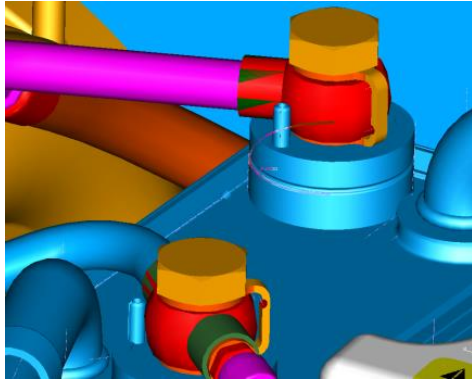
Radiator Drain Plug
Temperature Sensors
Oil Coolers
Fuel Coolers
Turbo Water Feed

BRAKE SYSTEMS

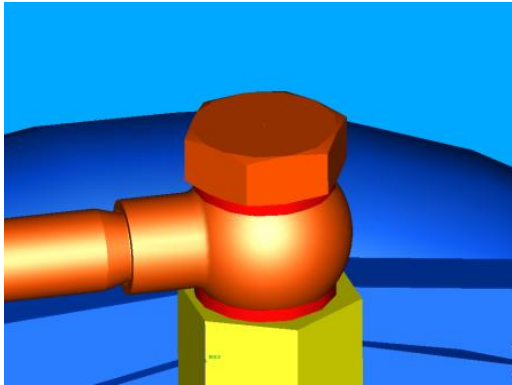
Booster Unit/Master Cylinder Connections

Fluid Connector Sealing System

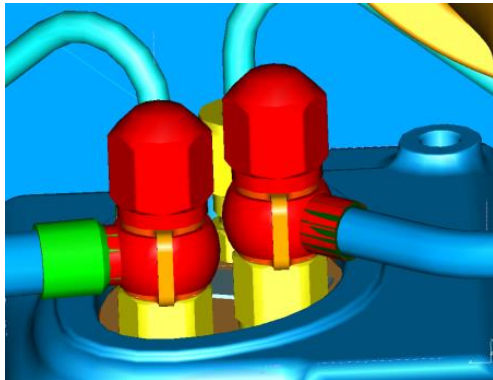
Fuel Cooler Connection



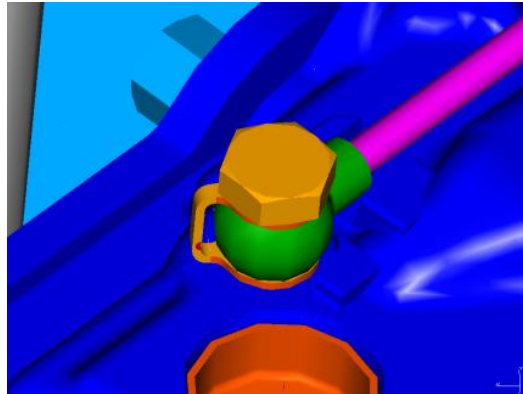
Turbo Connection



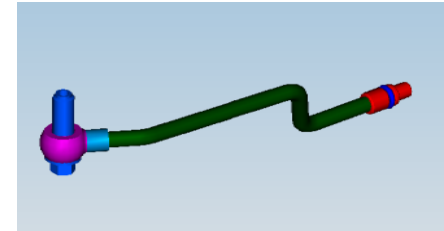
Fuel Line/ Filter Connection



Cylinder Head Connection



Oil Return to Pump



Fluid Connector Sealing System

Current Projects

Passenger

Jaguar
General Motors
FIAT / Maserati
Mercedes Cars
BMW
Audi

Application

Brake Connectors / HVAC/ Power Train
Turbo Connections (additional platforms)
HVAC
Turbo / HVAC
HVAC
HVAC

Truck / Off Road

DAF (Paccar)
Liebherr
Mercedes Trucks
Deutz Diesel

Fuel Line / Power Train / HVAC
Power Train
Fuel Line / Power Train
Power Train

Fluid Connector Sealing System

MAJOR OEM CUSTOMERS AUTOMOTIVE SECTOR

Passenger

Jaguar / Land Rover
Fiat / Ford
PSA
Ferrari

General Motors
Chrysler USA
Renault

Truck / Off Road

MAN
Scania
International Truck
DAF (Paccar)
Freight Liner (DTNA)

Iveco
Volvo
Liebherr

New Holland

Fluid Connector Sealing System

AUTOMOTIVE TIER 1 & 2 CLIENTS UTILISING TECHNOLOGY

BEHR
Bosch
Bend All
Biebighauser
Borg Warner
Calsonic
Contitech
Cosworth
Delphi
Denso
Eaton
Electricfil
Filtrauto
HALLA
Haldex
Honeywell
Hutchinson
Hycop
Oetiker

IMI Norgren
KEUMAH-SCHMITTER
Jiffy-Tite
Pro Vision
Nobel
Mann Hummel
SANDEN
SCHAEFFLER
Senior Automotive
Siemens
Teleflex
TI Automotive
TRW
T-ERRE
Wabco
Visteon
Valeo
ZF Transmissions
Usui Kokusai Sangyo Kaisha

Fluid Connector Sealing System

ADVANTAGES OF SEALING SYSTEM

Seal For Life

Cost Effective Sealing Solution

Reusability

Pre Assembly

Low Torque Requirements

Seal Design Is Flexible To Suit Existing Components

Sealing Capability Against Rough Surface

DISADVANTAGES OF SEALING SYSTEM

Perception That It Is An Increased Cost

Fluid Connector Sealing System

Din Range

