

ULTRAFILTREX
PIPELINE FILTRATION



ECLIPSE MAGNETICS — INNOVATIVE PIPELINE SOLUTIONS

WITH OVER 100 YEARS OF EXPERIENCE IN THE DESIGN AND MANUFACTURE OF HIGH PERFORMANCE MAGNETIC SYSTEMS, OUR DESIGN AND DEVELOPMENT TEAMS HAVE USED THEIR UNRIVALLED KNOWLEDGE OF MAGNETICS AND FLUID FLOW DYNAMICS TO DEVELOP ULTRAFILTREX, A HIGH PERFORMANCE FILTRATION SYSTEM.

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ULTRAFILTREX CAN DELIVER SIGNIFICANT PERFORMANCE GAINS IN OIL AND GAS APPLICATIONS

JUSTIN WALKER,
TECHNICAL SERVICES
DIRECTOR, AIR BP



ULTRAFILTREX — THE HIGH PERFORMANCE SOLUTION TO PIPELINE CORROSION

Black powder is the common name for a ferrous based contamination which typically forms in gas, oil and petrochemical pipelines.

Present in all downstream, midstream and upstream locations, it costs the energy sector many millions of dollars every year.



DEALING WITH PIPELINE CORROSION

Investing in Ultrafiltrex combats the problem of black powder and can avoid financial, operational and environmental costs, such as:



PIPELINE EFFICIENCY

Black powder formation reduces the usable diameter of the pipeline, reducing flow. This also results in an expensive cleaning or scraping process being required.



ABRASIVE DAMAGE

Black powder causes abrasive damage to critical rotating equipment such as Compressors and Pumps, resulting in costly repairs, replacement costs, downtime, and lost production.



ENVIRONMENTAL / HEALTH & SAFETY

Traditional barrier or cartridge filters require regular replacement resulting in high OPEX, from waste disposal costs which require specialist equipment and procedures.

ULTRAFILTREX — GROUND BREAKING FILTRATION TECHNOLOGY

ULTRAFILTREX COMBINES HIGH PERFORMANCE MAGNETICS WITH OPTIMUM FLOW DYNAMICS TO CAPTURE VIRTUALLY 100% OF BLACK POWDER CONTAMINATION IN PIPELINES. IT OFFERS TIME, MONEY AND ENVIRONMENTAL SAVINGS IN COMPARISON TO TRADITIONAL MEMBRANE OR BARRIER FILTERS SUCH AS CYCLONES, CONES, BASKETS AND CARTRIDGES, WHICH ARE LIMITED BY COLLECTION CAPABILITY AND PRONE TO BLOCKAGE.

THE BENEFITS OF USING ULTRAFILTREX

- Rapid return on investment in cost savings and downtime reduction
- Sub-micron particle size filtration capability
- No consumables required or on-going costs
- Reduces waste disposal costs and environmental impact
- Minimal pressure drop
- Protects pipelines and components from abrasive wear
- Ensures a cleaner, higher performance end product
- Minimises downtime and maintenance costs
- Provides protection in upstream, downstream and midstream sectors

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ULTRAFILTREX
MAGNETIC
TECHNOLOGY OFFERS
MANY ADVANTAGES
OVER CONVENTIONAL
CARTRIDGE SYSTEMS

FUELS RESEARCH AND
DEVELOPMENT, AIR BP

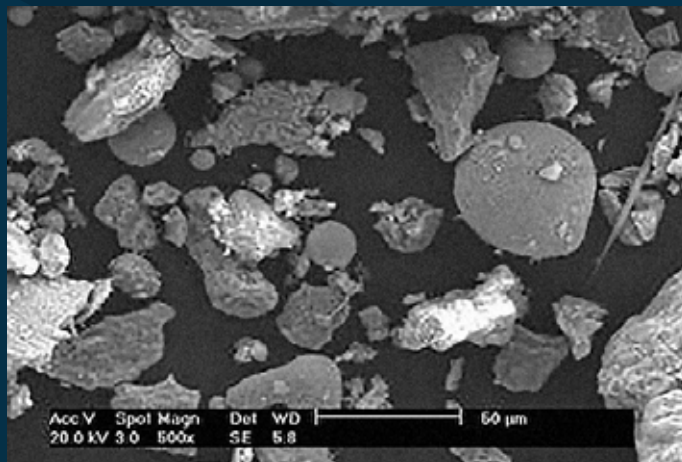


PIPELINE CORROSION —

ONE OF THE BIGGEST AND MOST PREVALENT PROBLEMS AFFECTING THE EFFICIENT OPERATION OF PIPELINES IS COMMONLY KNOWN AS BLACK POWDER. IN SIMPLE TERMS, IT IS AN ACCUMULATION OF CORROSION WHICH TYPICALLY FORMS IN GAS, OIL, PETROCHEMICAL AND AVIATION FUEL PIPELINES. THE RESULTANT FINANCIAL COSTS ACROSS WORLDWIDE INDUSTRY ARE ENORMOUS. IT CAN FORM THROUGHOUT MOST STAGES OF THE PROCESS IN EITHER A POWDER, LIQUID OR A BLACK SLUDGE SUBSTANCE, BUILT UP FROM VERY FINE OFTEN SUB-MICRON PARTICLES.

A COMBINATION OF THE PRESENCE OF WATER, OXYGEN, HYDROGEN SULFIDE AND CARBON DIOXIDE, IT ACTS AS A CATALYST FOR CORROSION OF FERROUS STEEL PIPE. ULTIMATELY THIS PRODUCES BLACK PYRRHOTITE, MORE COMMONLY KNOWN AS BLACK POWDER.

WHILST THE FORMATION IS GRADUAL, BLACK POWDER CAN ACCUMULATE SEVERAL THOUSAND KG IN UNTREATED PIPELINES. NATURAL EROSION OF THE PIPE WALL CAN FURTHER ADD TO THE ACCUMULATION.



Electron Scanning Microscope Image courtesy of BP

ULTRAFILTREX IS DESIGNED FOR USE IN UPSTREAM, MIDSTREAM AND DOWNSTREAM LOCATIONS.

PRODUCT FEATURES

- High performance Neodymium magnetic cores
- Full stainless steel construction - operational lifespan of >50 years
- Modular, low weight design
- Flow rates up to 10,000 m³/hr (Multiple units)
- Quick release mechanisms ensure easy cleaning
- Optional visual inspection features and sensors



SERVICE & SUPPORT —

ULTRAFILTREX IS A PREMIUM PRODUCT AND WE SUPPORT IT WITH A PREMIUM SERVICE. WE WORK WITH CLIENTS TO PROVIDE THE OPTIMUM LONG TERM SOLUTION.

THE ULTRAFILTREX SERVICE INCLUDES

- Pipeline sampling and contamination analysis
- Product design to suit flow rates and connections
- Installation guidance and set up to suit flow rates
- Ancillary equipment such as lifting gear for cleaning
- Safety, maintenance and operator training
- Worldwide network of technical support

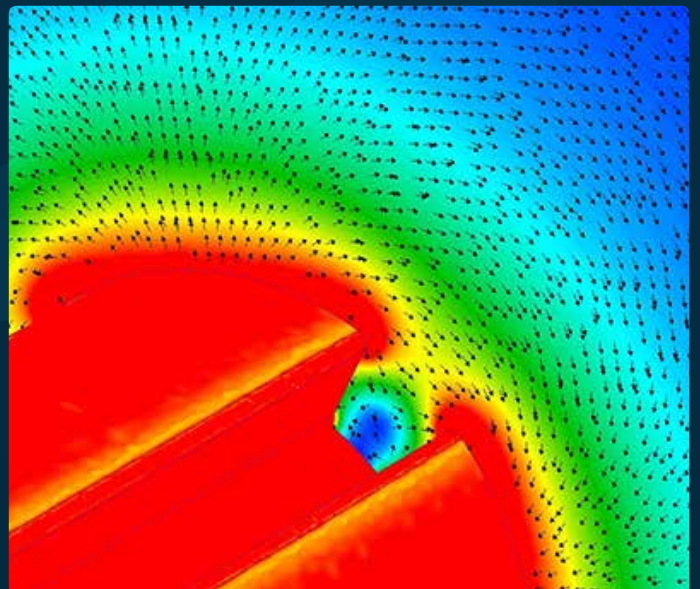


SPECIAL DESIGNS —

USING OUR WEALTH OF IN-HOUSE RESOURCES WE CAN WORK WITH CLIENTS TO DESIGN AND MANUFACTURE BESPOKE SOLUTIONS FOR PIPELINES IN THE OIL, GAS AND AVIATION FUEL SECTORS. OUR TEAM OF ENGINEERS CAN WORK WITH YOU TO ASSESS YOUR SPECIFIC APPLICATION PARAMETERS, SUCH AS PRESSURE, FLOW RATES, PIPELINE DIAMETERS, FILTER LOCATION, FLUID OR GAS TYPE. FROM THIS WE CAN DESIGN THE OPTIMUM ULTRAFILTREX SOLUTION FOR YOUR APPLICATION WITHIN BUDGET AND TIMESCALE.

OUR FACILITIES INCLUDE

- Dedicated development team using the latest 3D CAD software
- 3D FEA Stress Analysis
- Computational Fluid Dynamics software (CFD)
- INFOLYTICA magnetic field simulation software
- Access to the latest high performance magnetic materials
- Micron accurate machining and surface finishing
- Customised fabrication services
- Field testing and performance monitoring
- Project management and consultation



ULTRAFILTREX

PIPELINE FILTRATION



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