



aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



# Thermoplastic Success Stories

## Parflex Division

Typical Applications For Thermoplastic  
Hose & Tubing



ENGINEERING YOUR SUCCESS.

<b>Product Bulletin</b>	<b>Applications</b>	<b>SIC Code</b>	<b>Description</b>	<b>Page</b>
540N, 510C, 2040	Solar Power Tower	49110000	Hydraulic solar tracker system - cylinders and power packs	A1
510C, 540N, 2040	Solar-Parabolic Trough	49310000	Hydraulic solar tracker system - cylinders and power packs	A2
Non-Conductive 518C	Power Plants/Cooling Lines	49310000	Hose for cooling lines on high frequency electromagnetic filters for transformers	B1
Non Conductive 588N, 518C	Aluminum Plant	33530000	Hydraulic system for cranes and handling equipment/pneumatic system for crust breaker	B2
Black Eagle Hose	Offshore Oil & Gas	138918	High pressure, high flow hydraulic lines	C1
Twinline 590-8-8	Mobile Equipment	35310000	Telehandler boom	D1
Nylon Tubing	Mobile Equipment	35890000	Street sweeper water lines	E1

# 540N, 510C, 2040

Benefit: Less hose replacements and unexpected breaks in power

Market: Renewable Energy/Solar-Power Tower

Product: Thermoplastic Hoses 540N, 510C and 2040



## Customer Unmet Need:

Concentrating Solar Power (CSP) use mirrors to catch the sunlight falling over a large area and redirect it towards a tube. To ensure the best efficiency, the mirrors constantly follow the sun. The hydraulic solar tracker system requires hoses between the cylinders and the power packs.

Due to the natural installation areas for solar plants, the hoses are exposed to severe environmental conditions. Very high UV concentration, extreme temperatures and temperature changes, especially in the desert, break down many hoses prematurely.

## Solution:

Thermoplastic hose with a polyurethane cover. The UV resistant cover withstands the harsh UV rays and the hose maintains its flexibility, despite the extreme temperatures. In addition, the compact O.D. allows for a better bend radius, resulting in a quicker installation.



## Contact Information:

Parker Hannifin Corporation  
**Parflex Division**  
 1300 North Freedom St.  
 Ravenna, OH 44266  
**phone 330 296 2871**  
**fax 330 286 8433**  
[www.parker.com/parflex](http://www.parker.com/parflex)

## Success Factors:

- Superior UV resistance of cover material
- Small hose diameter where possible due to slow movements
- Biodegradable oil resistance when applicable

## Customer Values:

- Trouble free operation in remote solar plants
- Avoid unscheduled maintenance changeouts
- Contributed to a good market reputation in a fast growing marketing
- Economical prices on hose assemblies



# 510C, 540N, 2040

Benefit: Less hose replacements and unexpected breaks in power  
Market: Renewable Energy/Solar-Parabolic Trough  
Product: Thermoplastic Hoses 510C, 540N and 2040



## Customer Unmet Need:

Concentrating Solar Power (CSP) use mirrors to catch the sunlight falling over a large area and redirect it towards a tube. To ensure the best efficiency, the mirrors constantly follow the sun. The hydraulic solar tracker system requires hoses between the cylinders and the power packs.

Due to the natural installation areas for solar plants, the hoses are exposed to severe environmental conditions. Very high UV concentration, extreme temperatures and temperature changes, especially in the desert, break down many hoses prematurely.



## Solution:

Thermoplastic hose with a polyurethane cover. The UV resistant cover withstands the harsh UV rays and the hose maintains its flexibility, despite the extreme temperatures. In addition, the compact O.D. allows for a better bend radius, resulting in a quicker installation.

## Contact Information:

Parker Hannifin Corporation  
**Parflex Division**  
1300 North Freedom St.  
Ravenna, OH 44266  
**phone 330 296 2871**  
**fax 330 286 8433**  
[www.parker.com/parflex](http://www.parker.com/parflex)

## Success Factors:

Excellent environmental durability and biodegradable oil resistance, when required

## Customer Values:

- Trouble free operation in remote solar plants
- Avoid unscheduled maintenance changeouts
- Contributed to a good market reputation in a fast growing marketing
- Economical prices on hose assemblies



# 518C Hose

Non-Conductive

Benefit: Electrically non-conductive and easy to install  
Market: Power Plants/Cooling Lines  
Product: 518C Non-Conductive Hose



## Customer Unmet Need:

The customer application was a hose assembly for cooling lines on high frequency electromagnetic filters for transformers and sun collector fields. They needed a hose that:

- was electrically conductive to avoid induction of a secondary field in the hose
- could handle a working pressure of 300 psi
- operate in temperatures up to 160°F
- transfer a water/glycol mix

## Solution:

Parflex's 518C thermoplastic hose has a non-conductive, copolyester core tube and operates up to 212°F. The orange cover is SAE J517/100R7 compliant, light weight and flexible.



## Contact Information:

Parker Hannifin Corporation  
**Parflex Division**  
1300 North Freedom St.  
Ravenna, OH 44266  
**phone 330 296 2871**  
**fax 330 286 8433**  
[www.parker.com/parflex](http://www.parker.com/parflex)

## Success Factors:

- No generation of secondary fields

## Customer Values:

- Reduced assembly time
- Reduced costs



# 588N and 518C Hose

## Non-Conductive Hydraulic/Pneumatic Solutions

Benefit: Electrically non-conductive  
Market: Aluminum Plant/Crust Breaker and Crane  
Product: 588N Non-Conductive Hose/518C Non-Conductive Hose

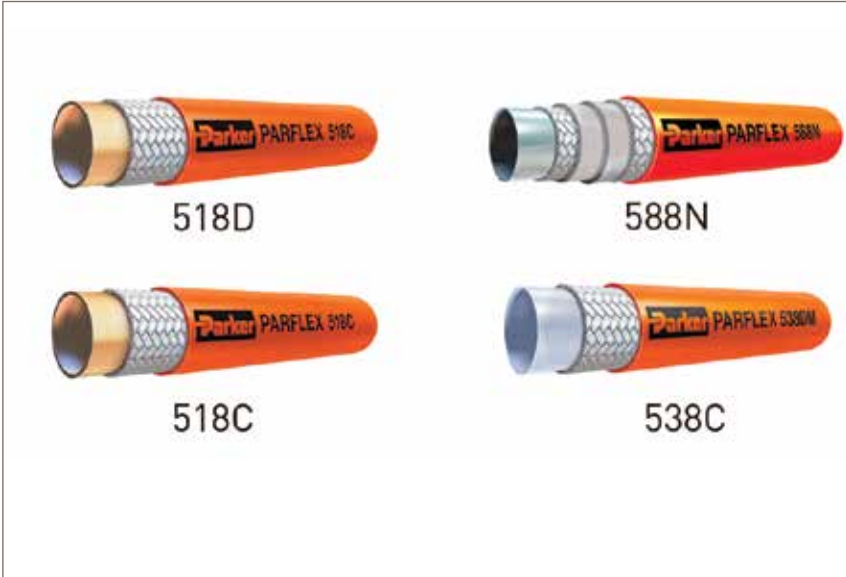


### Customer Unmet Need:

The customer had two applications for non-conductive hose. The first one was a hydraulic system for cranes and handling equipment (i.e. change of anodes) and the second, for a pneumatic system on a crust breaker. The non-conductivity was required to insulate melting furnace from other equipment (ie. crust break cylinder)

### Solution:

Parflex's 518C thermoplastic hose has a non-conductive, copolyester core tube and operates up to 212°F. The orange cover is SAE J517/100R7 compliant, light weight and flexible.



### Contact Information:

Parker Hannifin Corporation  
**Parflex Division**  
1300 North Freedom St.  
Ravenna, OH 44266  
**phone 330 296 2871**  
**fax 330 286 8433**  
[www.parker.com/parflex](http://www.parker.com/parflex)

### Success Factors:

- Good resistance to dry air
- Easy to clean cover
- Light weight & easy to install

### Customer Values:

- Safe operation
- Long life time in critical atmosphere (dry air)
- Easy maintenance (cleaning hose cover)



# Black Eagle Hose

Benefit: Increased Productivity and lower cost

Market: Offshore Oil & Gas

Product: Black Eagle Hose



## Customer Unmet Need:

Flexible steel pipe is the traditional solution for the hydraulic connection between the LMRP and BOP stack in offshore drilling. Flexible pipe is high cost and has a 48-week lead time. Customers needed to reduce the lead time and cost of high pressure, high flow hydraulic lines between the LMRP and BOP stack. These high pressure, high flow lines must be capable of withstanding internal pressures up to 10,000 psi, with a flow rate of 400 gallons per minute.



## Solution:

Black Eagle hose, 2580N-32V80, has a 6-week lead time and cost savings of 23.5% compared to flexible pipe. Black Eagle helped customers increase productivity to meet the demanding production schedule of BOP stacks. It is rated to 10,000 psi and complies with DNV-05-ES101 Drilling Plant October 2009, API Specification 7K Drilling and Well Servicing Equipment.



## Contact Information:

Parker Hannifin Corporation  
**Parflex Division**  
 11151 Cash Rd  
 Stafford, TX 77477  
**phone 281 566 4500**  
**fax 281 582 5271**  
[www.parker.com/parflex](http://www.parker.com/parflex)

## Success Factors:

- The customer went from a 48-week lead time to a 6-week lead time.
- Customer's assembly cost savings is 23.5%

## Customer Values:

- Significantly shorter lead times
- Increased production rates
- Lower cost



# 590-8-8 Twin Line Hose

Benefit: Minimal abrasion for longer hose life  
Market: Mobile Equipment/Telehandler Boom  
Product: 590-8-8



## Customer Unmet Need:

The hose assemblies in the boom of the telehandler, used for tilt and auxillary functions, were failing prematurely and resulting in big claims, high costs and a bad market reputation. The problem with the initial single line hydraulic hoses were that they rolled over each other under pressure, sometimes referred to as a "spaghetti effect". A standard twin line hose solved the problem but failed due to the severe working conditions> The machinery was being used approximately 12 hours / day in a high temperature environment (up to 1940°F /90°C).



## Solution:

Parker 590 thermoplastic twin line hose assembly. The bonded hose easily passed the extensive qualification tests and was able to be used on all boom designs, which in turn, decreased inventory costs.

## Contact Information:

Parker Hannifin Corporation  
**Parflex Division**  
1300 North Freedom St.  
Ravenna, OH 44266  
**phone 330 296 2871**  
**fax 330 286 8433**  
[www.parker.com/parflex](http://www.parker.com/parflex)

## Success Factors:

- Very low change in length under pressure
- Excellent hose performance, even under the most severe conditions
- Price competitive hose

## Customer Values:

- No field claims, improving their reputation
- Cost reductions due to unexpected downtime, maintenance calls or replacement hoses
- Inventory reductions due to the consolidation of one hose for all booms
- Global design in Europe and US





# Water Lines

For Water Conveyance Systems

Benefit: Reduced Components/Ease of Installation  
Market: Mobile Equipment/Air & Mechanical Sweepers  
Product: Nylon Tubing



## Customer Unmet Need:

The customer used formed steel tubing for this application. Being exposed to outside conditions, the steel tubes would corrode. The lines were also difficult to install and utilized many connections which led to numerous leak path locations.

## Solution:

Nylon tubing was used in place on the lines instead of the steel tubing. The switch to the nylon tubes eliminated the corrosion issues while providing the customer a product lighter in weight and easier to install. The nylon tubing also led to a reduction in components because it eliminated half of the threaded connections, replacing them with push-to-connect connections, which improved installation time and efficiency.



## Contact Information:

Parker Hannifin Corporation  
**Parflex Division**  
1300 North Freedom St.  
Ravenna, OH 44266  
**phone 330 296 2871**  
**fax 330 286 8433**  
[www.parker.com/parflex](http://www.parker.com/parflex)

## Success Factors:

Customers converting to nylon tubing saw reduced assembly times in the form of installation and component complexity. This was a direct cost savings per machine.

## Customer Values:

- Lower component costs
- Reduced assembly time
- Lower weight
- Reduction in threaded connections
- Reduced leak points

