Suburban MANUFACTURING, INC.

Revised 03/01/2011

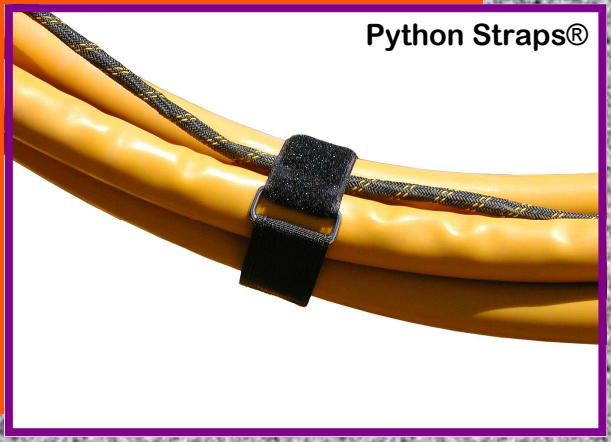
Protective Hose Sleeves and Straps

Hydraulics · Electrical · Industrial · High Temperature

Suburban Sidewinder Sleeve®
& Suburban Sidewinder Sleeve® - HT

Python Hanging Strap®

Python Straps®



Diamondback Sleeve®

Line of Sight · Abrasion · Bundling · OEM · Custom Applications

Toll Free: 1-800-782-5752 Fax: 763-295-6601
www.gosuburban.com

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Solutions

Protective Sleeves

Python Straps®

Suburban Manufacturing Inc. is certified ISO 9001:2008

Toll Free: 1-800-782-5752

Suburban MANUFACTURING, INC.

Solutions for Plumbing Problems

With the increased sophistication of controls, higher working pressures, and flow rates, hydraulic systems have become more complex.

Traditionally, machine design has left plumbing routing as one of the last areas to address. Our products are designed to address performance issues encountered by current systems.

Understanding the Plumbing Problem

Hydraulic plumbing has changed dramatically in the last fifteen years. Machines have become "power units" for a vast array of attachments. Hydraulic systems have become more complex with the increasing sophistication of controls, higher working pressures, and flow rates that are used today.

Machine design traditionally has left the plumbing routing as one of the last areas to address. Our products are designed to address the performance issues that current systems encounter.

- Clamping and containment is not well served with the "One size fits all" concept.
- Nylon ties can cause hose pinching resulting in casing wear. They are also subject to breaking after long term UV exposure and lack of flexibility to allow for hose pressurization and contraction.
- Traditional clamps do not allow for easy plumbing changes needed for timely attachment changes.
- Welded rings and clamps can also cause abrasive wear to hose or cable casings.
- Traditional clamping requires adequate mounting space and is not expandable.
- Conventional sleeve used for bundling is both difficult and time consuming to replace.
- Many applications demand more than abrasion protection. They must also deal with high temp issues, operator hose leak and burst protection, electrical current isolation and other adverse operating environments.
- Lack of adequate routing space and ability to meet extreme range of motion requirements.

Over time, fixed clamps may damage the hose.

Protective sleeve would have likely saved this hose casing from being damaged

Judging by the label, they must have figured the clamp would lead to failure (under warranty). Notice how the cover and sticker have been gouged by the clamp.

Engineering Solutions

Low cost non-invasive solution to zip ties

Hot molten metal protection

Pinch point protection

Range of motion, Contact, and Operator Safety

Safely control the range of motion and contact while providing operator safety with our high tech removable textile covers and restraints.

Our products are designed to hold and protect hoses, cables and wiring without impeding movement and transfer abrasion: Suburban Sidewinder (wrap), Diamondback (tubular), and Python (straps). Most products are standard stock which provides a platform for low cost application specific (custom) product.

- No interference with range of motion
- Movement without hose to hose abrasion
- Reduced installation labor, allows for outstanding serviceability
- Easy expansion/removal of hose bundles
- Additional ‘close proximity’ personnel protection
- Abrasion protection in hard to reach areas
- Isolate hoses and hose bundles from high temperatures

Hanging strap is used to bundle and support the hoses

Sidewinder Sleeve is easily applied with Hanging Strap to contain and protect the hoses

Engineering Solutions - Ask Us!

Our application engineers are creating special custom solutions every day – sleeves with straps, special tethers and hardware, extreme abrasion as well as high temperature application.

The origination and continual improvement of our products is a direct response to application needs. We are constantly addressing new and challenging requirements from every conceivable market sector. This method of operation gives us the ability to provide immediate solutions to most applications, available in just a few days!

Our sleeve materials cover the whole spectrum of application requirements for abrasion, high temperature and specialty requirements. Our range of expertise helps you fit the right sleeve for the application. This includes; light weight sleeve to sleeves that offer heavy duty abrasion protection. We can also give you reflective surface utilizing high visibility ground glass.

Why Use Protective Sleeves and Straps

Suburban Sidewinder Sleeve®: Available in 13 different materials

Reduces installation labor time by up to 70%.
Can be utilized without disconnecting hoses which eliminates the risk of contaminating your hydraulic system.
Allows for easy bundling of hoses and cables without over binding or creating hose abrasion.
Allows natural movement of hose while restricting motions in force routing situations.
Available in many materials for different applications.
Can be "featured" or customized to perform protection and mounting duties, reducing parts and costs.
Five high temp materials for Tier 3 and 4 Diesel applications
Meets intent of EU Machinery Directives

Suburban Sidewinder Sleeve

Diamondback Sleeve

Diamondback Sleeve

Hybrid, tubular sleeve - needle woven to produce a tighter, smoother sleeve.
Keeps pin-hole oil leaks in check - reducing the environmental impact.
Delivers optimum U.V. and abrasion protection.
Can be cut to any length.
Meets or Exceeds:

- European Line Of Sight legislated specification
- ISO 6945 Abrasion standards
- EN414 & EN474-1 & EN500-1
- ISO 8031 Conductivity requirements
- Meets NSW guideline for fluid power safety at mines
- EN982 ISO NORM 833

Python Straps® - Cinch and Hanging

Effective replacement for nylon tie straps and hose clamps
Stands up to U.V. exposure – remains flexible and strong
Wide and non-evasive - will not pinch or crimp hoses or cables
Offers quick access to bundles when switching attachments
Heavy duty straps are capable of securely mounting heavy hydrostatic bundles
Permits expansion and contraction of high pressure hoses and are superior to rigid mounts
Available in standard and heavy duty versions
Secure, non-damaging bundling and mounting options are available
Meets intent of EU Machinery Directives

Cinch Strap

Hanging Strap

Suburban Sidewinder Sleeve®

Materials Index

1 Roll is 150 FT

Cylinder Piston Rod Protection

Suburban Sidewinder Sleeve®

Material	Abrasion	Temp (Heat)	Temp (Cold)
1050B	3	4	2
5601	1	6	1
100417	2	7	5
300-600DP	8	6	3
HVO (Orange)	3	7	1
HV (Yellow)	3	7	1
35 UBG	1	6	1
20 UBG	1	7	1
18411	3	3	2
TGS (EJ-1650)	6	2	2
WS (24B-60)	9	2	4
CF (31600)	10	1	1
SF (Silicon Coated Fiberglass)	9	3	2

Sidewinder Sleeve Legend	**Range**	**1-3**	**Excellent**
		4-6	**Good**
		9-10	**Poor**

Abrasion			Notes:
	Range:	1-3	Excellent
		4-6	Good
		9-10	Poor
Temperature (Heat)			Notes:
	Range	1-2	Excellent
		5-6	Good
		10	Poor
Temperature (Cold)	Range	1-2	Excellent
		3-4	Good
U.V. Resistance	Range	1-3	Excellent
		4-6	Good
		9-10	Poor
Chemical Resistance	Range	1-3	Excellent
		4-6	Good
		9-10	Poor
Wicking	Range	1-2	Excellent
		5-6	Good
		9-10	Poor
Puncture / Tear Resistance	Range	1-3	Excellent
		4-6	Good
		9-10	Poor
Sparks / Welding	Range	1-3	Excellent
		4-6	Very Good
		9-10	Poor

Material Specifications and Ratings

U.V. Resistance	Chemical Resistance	Wicking	Puncture & Tear Resistance	Sparks Welding slag	Cost	Flexibility
3	3	4	2	8	2	2
2	2	2	3	9	5	1
3	3	1	2	10	4	4
4	7	7	6	9	1	2
2	3	2	7	9	5	1
2	3	2	7	9	5	1
2	2	1	1	7	9	6
1	1	1	1	9	6	1
2	2	1	2	2	3	3
1	1	3	3	2	7	3
2	3	4	4	1	6	4
1	2	10	10	1	8	1
2	9	1	10	1	6	3

Conforms to ISO Standard as an accepted norm.

Abrasion is an arbitrary term subject to the application, ambient temperature, weather conditions and operator interaction.

weather conditions, and operator interaction. See material applications for examples.

200,000	Plus Cylces
50,000	Plus Cylces
0	Not recommended for applications involving Abrasion

Ambient temperature can be compared to Oven Heat - high temperature working atmosphere the application must with stand.

- The sleeve and the hose or cable can be at the same temerature

Spot Heat is like welding sparks or sparks from grinding. Temperature decreases with distance from the source

1800	Degree F Intermittent
250	Degree F Intermittent
120	Degree F Intermittent

-60	Degree F Unaffected
10	Degree F Slightly Stiffer

Direct sunlight with snow or water reflection, 3-5 years without structural compromise

Outdoor application direct / indirect sunlight, 3 years withour structural compromise

NOT suited for outdoor applications

Petroleum Oils, intermittitent fuels, acids up to 38% solution, paint solvnet, caustics

Petroleum oils, intermittitent fuels, caustics 10%solutions, AG chemicals, antifreeze

Not recommended for use with Chemicals, material will lose all structural integrity

Total Sealed

Resistance to Rain

Sponge

Effort to pucnture with sharp object, difficult to cut, will not tear

Requires sharp object to puncture, very difficult to tear with out sharp edge object

Can be torn with effort by hand

Resists all sparks, prevents momentary molten penetration, resist heat conductivity

Resists all sparks, momentary red hot spall. Surface pitting minimal in heavy molten spall

Do not Use for this application, will melt and propogate a flame

Sizes Available

Part #	Bundle O.D. (Inches)	Circum (Inches)	Flat Width (Inches)	Hook & Loop Width (Inches)
SL-1.0	1.0	3.14	3.89	0.75
SL-1.5	1.5	4.71	5.46	0.75
SL1.75	1.8	5.50	7.00	1.50
SL-2.0	2.0	6.28	7.78	1.50
SL-2.38	2.4	7.47	8.97	1.50
SL-2.5	2.5	7.85	9.35	1.50
SL-2.75	2.8	8.64	10.14	1.50
SL-3.0	3.0	9.42	10.92	1.50
SL-3.25	3.3	10.21	11.71	1.50
SL-3.5	3.5	10.99	12.49	1.50
SL-4.0	4.0	12.56	14.06	1.50
SL-4.5	4.5	14.13	15.63	1.50
SL-5.0	5.0	15.70	17.20	1.50
SL-6.0	6.0	18.84	20.34	1.50
SL-7.0	7.0	21.98	23.48	1.50
SL-8.0	8.0	25.12	26.62	1.50

This is a list of the sizes available.

Sample Part Number is SL-2.0-1050B
*This is for a 2 inch diameter sleeve of 1050 Ballistic Nylon

Sububan Sidewinder Sleeve®

1050 Ballistic Nylon Material Features

Sample PN: SL-2.0-1050B

- Material: Mil-Spec 1050 Ballistic Nylon, 1.7 mil urethane coating
- Temperature Range: -60° to +250° F
- Abrasion: Very good; meets ISO 6945 specifications
- Puncture/Tear: Excellent; very puncture and tear resistant
- UV protection: Very good; meets EN13758-1 max rating of 80 New/Dry
- Chemicals: Very good resistance to water and petroleum
- Wicking: Good; sheds surface moisture

Typical Applications:

Best all around substrate for most applications. Well suited for bundling, abrasion and operator protection (EN982, ISO NORM 833, EN414). Used on mobile equipment, industrial machines, covering cable and wiring bundles. Not for welding.

1050 Ballistic Nylon is the most commonly used Sidewinder Sleeve material for **abrasion protection** of industrial hydraulic hoses and hydraulic cylinders

5601 Material Features

Sample PN: SL-2.0-5601

- Material: 1000 Denier Cordura (10.5 oz.) with 7 mil urethane coating Meets MIL-C-83489, FED-STD-191A, MIL-STD-810F
- Temperature Range: -60° to +250° F
- Abrasion: Excellent; meets ISO 6945 Specifications
- Puncture/Tear: Very good; resists tearing
- UV protection: Excellent; meets EN13758-1, top rating of 80 New
- Chemicals: Very good resistance to water and petroleum
- Wicking: Excellent resistance to absorbsion

Typical Applications:

Great for most mobile and industrial applications, an excellent choice for bundling hoses, wires, and cables. The heavy urethane coating provides super low coefficient of friction as well as excellent abrasion resistance for wet, high UV and crisp edge applications and remains very flexible regardless of temperature.
Operator protection meets EN982, ISO NORM 833, EN414.

Suburban Sidewinder Sleeve®

100417 - Architectural PVC Material Features

Sample PN: SL-2.0-100417

- Material: Architecural PVC coating over a 1000 Denier substrate Meets MIL-C-83489, FED-STD-191A, MIL-STD-810F
- Temperature Range: -20° to +150° F
- Abrasion: Very Good; tough & lightweight Meets ISO 6945 Specifications
- Puncture/Tear: Fair to Good; resists punctures
- UV protection: Excellent; meets EN13758-1, top rating of 80 New
- Chemicals: Very good resistance to water, petroleum products, and detergents
- Wicking: Excellent; non wicking

Typical Applications:

Tough outdoor applications such as covering hose used on the ground, mud pumping for well drilling, remote construction tools.

Black Poly (300X600 DP) Material Features

Sample PN: SL-2.0-JD

- Material: 600 Denier material With PVC Coating Meets MIL-C-83489, FED-STD-191A, MIL-STD-810F
- Temperature Range: -0° to +200° F
- Abrasion: Fair; Lightweight
- Puncture/Tear: Fair
- UV protection: Good; meets EN13758-1, top rating of 80 New
- Chemicals: Very good resistance to water, petroleum products, and detergents
- Wicking: Excellent; Non wicking
- Welding Sparks/Spall: NOT Recommended

Typical Applications:

Lightweight bundling of hoses, cables and wires.

Suburban Sidewinder Sleeve®

High Visibility Orange & Yellow Material Features

- Material: 210 Denier Cordura with
  7.0 Mil urethane coating outside
  0.5 Mil urethane coating inside
  Meets MIL-C-83489, FED-STD-191A, MIL-STD-810F
- Temperature Range: -60° to +250° F
- Abrasion: Very Good; tough & lightweight
  Meets ISO 6945 specifications
- Puncture/Tear: Fair to Good; resists punctures
- UV protection: Excellent; meets EN13758-1, top rating of 80 New
- Chemicals: Very good resistance to water, petroleum products, and detergents

Sample PN: SL-2.0-HVO

Sample PN: SL-2.0-HVY

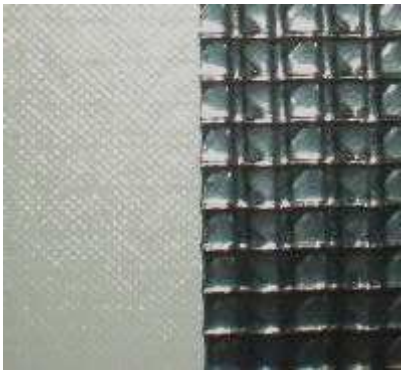
Typical Applications:

Umbilical bundling, covering long lengths of hose or cable that lay on the ground. The high optical visibility and low physical weight make it very good for dragging hoses. This material has very good abrasion protection with good slip characteristics.

20 UBG & 35 UBG Material Features

Sample PN: SL-2.0-20UBG or 5UBG

- Material: 20 Mil Urethane Laminate over Nylon 6 Scrim, or
  35 Mil Urethane Laminate over Nylon 6 Scrim
- Temperature Range: -60° to +250° F
- Abrasion: Excellent; ranked highest,
  meets ISO 6945 specifications
- Puncture/Tear: Excellent; extremely difficult to puncture or tear
- UV protection: Excellent; best barrier, meets EN13758-1,
  top rating of 80 New
- Chemicals: Excellent, unaffected by water, petro chemicals,
  or mild caustics
- Wicking: Excellent; non wicking



20UBG shown above

Typical Applications:

This material is used on the toughest applications where abrasion can not be avoided. Being extremely low coefficient of friction, this material slides smoothly minimizing abrasive wear.

Suburban Sidewinder Sleeve®

18411 Material Features

Sample PN: SL-2.0-18411

This material is unique because it is sealed on both sides with a proprietary Fire Retardant Neoprene, so it can be used on applications for:

- Higher temperature environments, and
- Sub-Sea

• Material:	1000 Denier Cordura, Double Coated with Proprietary High FR Neoprene Meets MIL-C-20696E, Type 2, Class 1
• Temperature Range:	-40° to +250° F, momentary spot heat up to 800° F
• Abrasion:	Very Good/Excellent; drag abrasion from welding spall, concrete floor Meets ISO 6945 specifications
• Puncture/Tear:	Excellent; Resists puncture or tear
• UV protection:	Excellent; Best Barrier, meets EN13758-1, top rating of 80 New
• Chemicals:	Excellent, unaffected by water, petro chemicals, sea water, oils, mild solvents
• Wicking:	Excellent; non wicking
• Welding Sparks/Spall:	Excellent; Resist and sheds sparks and hot spall

Typical Applications:

This is an excellent choice for welding cables or hose that is often dragged across the floor and because of its resistance to sparks and hot spall. This material is frequently used on off shore oil and drill rigs and in sub-sea maintenance to protect hoses from barnacles, sea life, and salt water.

18411 comes in assembled long lengths for these types of applications

Suburban Sidewinder Sleeve®

Teflon Glass (EJ 1650) Material Features

Sample PN: SL-2.0-TGS

- Material: Teflon Coated Fiberglass
- Temperature Range: up to +550° F constant
  Up to +650° F intermittent
- Abrasion: Excellent; ranked highest,
  meets ISO 6945 specifications
- Puncture/Tear: Excellent; extremely difficult to puncture or tear
- UV protection: Excellent; best barrier, meets EN13758-1,
  top rating of 80 New
- Chemicals: Excellent; unaffected by water, petro chemicals, or
  mild caustics
- Wicking: Excellent; non wicking
- Welding Sparks/Spall: NOT Recommended

Typical Applications:

Great for use in engine compartments, this product has the ability to withstand high ambient temperatures.

Weld Shield (24B-60) Material Features

Sample PN: SL-2.0-WS

- Material: Plain Weave Fiberglass with coating on both sides of
  proprietary FR neoprene coating
- Temperature Range: -40° to +400° F continuous exposure
  -40° to +750° F intermittent exposure
- Abrasion: Fair; not recommended for applications with abrasion
  resistance
- Puncture/Tear: Excellent; extremely difficult to puncture or tear
- UV protection: Excellent; best barrier, meets EN13758-1,
  top rating of 80 New
- Chemicals: Excellent, unaffected by water, petro chemicals, or
  mild caustics
- Wicking: Excellent; non wicking
- Welding Sparks/Spall: Excellent; shields molten metal to 3000° F when on an
  incline of 15°

Typical Applications:

Great for robotic welders and machinery to protect hoses, cables and wiring from sparks.

Suburban Sidewinder Sleeve®

Carbon Fiber / Fiberglass (31600) Material Features Sample PN: SL-2.0-CF

- Material: Pan Based Carbon Fiber with Woven Reinforcement
- Temperature Range: +3000° F momentary spot heat
- +1800° F continuous face heat
- Abrasion: Poor; not recommended for applications with abrasion
- Puncture/Tear: Poor
- UV protection: Excellent
- Chemicals: Poor; this is a porous material
- Wicking: Poor; this is a porous material
- Welding Sparks/Spall: Excellent

Carbon Fiber material resisting the open flame without any damage

Typical Applications:

Extreme high temperature applications, foundries, welding, hot tar and asphalt

Silicon Fiber / Fiberglass Material Features Sample PN: SL-2.0-SIL

- Material: Silicon Coated Fiberglass Fabric
- Temperature Range: Up to +550° F constant
  Up to +650° F intermittent, core fabric 1000° F
- Abrasion: Poor; not recommended for applications with abrasion
- Puncture/Tear: Good
- UV protection: Excellent
- Chemicals: Excellent—resistant51
- to oils, mild chemicals
- Wicking: Excellent—silicon coated both sides
- Welding Sparks/Spall: Excellent

Typical Applications: (Engine)

Can be used exclusively under hood

Suburban Sidewinder Sleeve®

Thousands of Custom Parts

Custom sleeve for OEM application. High temp sleeve protects hydraulic hoses from abrasion and high temperature weld spall.

HOT refueling application for military helicopter. Sidewinder Sleeve is wrapped around refueling line to protect expensive refueling line from abrasion.

Above:
Custom 5601 sleeve with heavy Urethane coating and straps prevent abrasion from steering components

Special custom sleeve covers high temp tubes on a road patcher head preventing against operator injury

Redundant optical retention for cam lock coupling for oil field applications

Available Upon Request (RFQ):

1. Cut to length
2. Printed part #, and/or logo.
3. Reflective radial straps
4. Fabricated long lengths
5. Materials for extreme abrasion
6. Diameters of any length
7. Straps or tethers attached to sleeve
8. Grommets attached for hanging sleeve
9. Lift sling attached to add lifting capacity
10. Materials for extreme heat
11. Hook and loop closures –60° F to 600° F
12. Operator protection

Suburban Sidewinder Sleeve®

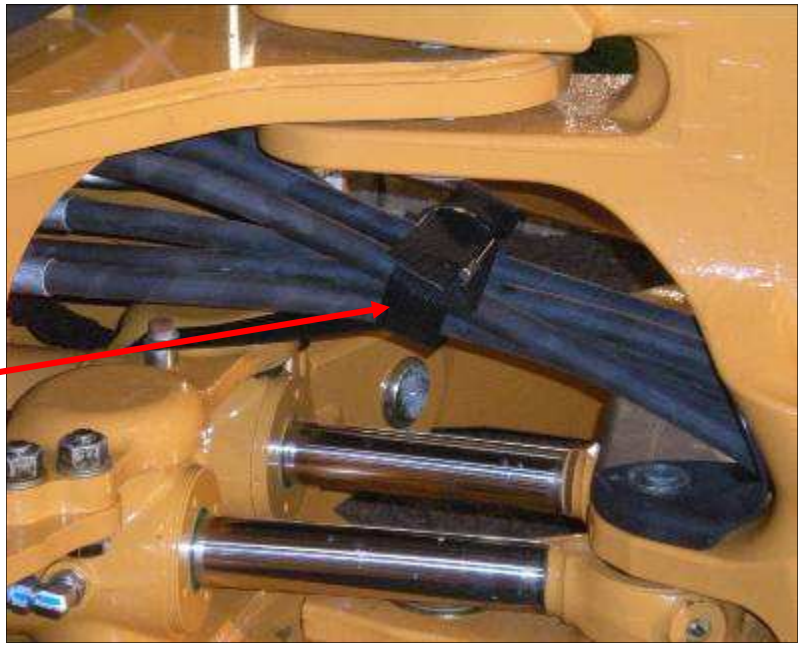
Thousands of Custom Parts

Custom sleeve installed by CNH to bundle and route the hydraulic hoses

Custom Sleeve on oil rigs

Special sling sewn to sleeves supports large heavy oil rig bundles

Custom strap with quick release buckle



Tier 3 & Tier 4 Diesel - Off Highway

Suburban Sidewinder Sleeve® HT

Suburban Manufacturing, Inc. is the creator of the continuous length, bonded, "wrap" style protection sleeve. Suburban Sidewinder Sleeve® is available in 13 different materials in 75 and 150 foot lengths. Six of these materials are designed for high temperature and chemical applications.

These six high temperature materials may also be used in production of application specific parts. One key area served Suburban Sidewinder Sleeve® is the off highway diesel engine exhaust applications where cooling air flow is limited. Sidewinder HT is a high temperature sleeve system, tailored for the mobile OEM market. It allows engineers to design a sleeve for exhaust areas that require flexible, removable, high temp shielding/ blanketing of exhaust systems. It is a simple multiple choice system that allows designers to fine tune the product choice to meet the application, budget, and installation requirements.

Evaluating the Application Requirements:

Abrasion and high temperature are two very different issues that are difficult to serve with a single product. Sidewinder HT does have some cross over performance capabilities for these applications: spot heat, welding, and hot chemicals.

Materials for heat are divided in two categories:

Spot heat/ Hot Face: For welding, grinding, molten metal pouring, and momentary contact. It also encompasses applications where wiring or hoses run in close proximity to a heat source such as a turbo, muffler, or hot mold, and for applications that have a surrounding atmosphere which is cooler than the "hot face" or point of closest heat contact.

Oven Heat: Where the heat source and surrounding atmosphere are the same temperature, and there is no heat exchange promoting cooling.

Engine Compartment

Suburban Sidewinder Sleeve® - HT

Insulation Value:

Every application has different insulation requirements for different reasons. Sidewinder HT can be used to isolate heat, preventing heat radiation from affecting an enclosed area. It is also used to maintain heat for engine applications where soot filters require higher temperatures to work properly. Sidewinder HT can als be used to insulate hoses conveying a hot mix, such as sealants or high temp foams.

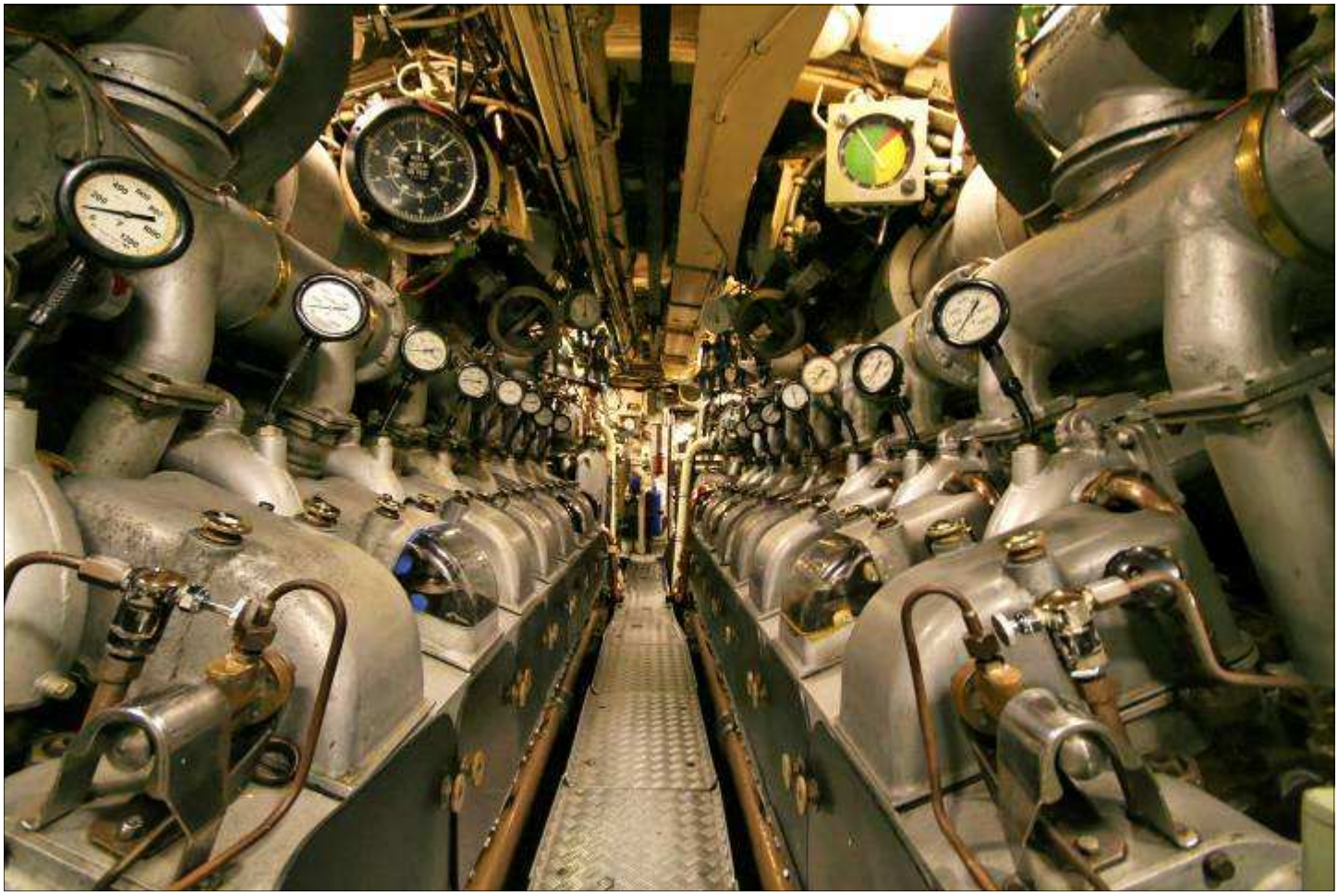
We can provide three levels of protection:

Lowest: redundant covering of a hot component to prevent operator injury from momentary contact

Medium: Peak temperature reduction. Temperature control in a specific area such as an engine area.

Highest: Preventing heat from affecting ambient temperatures in an enclosed area.

Application evaluation: Air flow and environment are key factors in performance that must be evaluated to choose the proper product. Prototypes can be produced and application testing is highly recommended.



Inside a U. S. Navy Submarine

Suburban Sidewinder Sleeve®

1. The System - Start with the Cover

Covers (Choose One):

The different Cover choices are listed in order of temperature ratings from low to high. Note that they are used with an insulation layer that dramatically reduces the contact heat or hot face that the cover is exposed to. All fiberglass and silica fabrics are listed at their peak temperatures for continuous use. The coatings are subject to degradation with direct contact above rated temperatures. What happens is that the coatings will lose their elastomers and dry out above rated temperature.

18411: High FR proprietary Neoprene coated 1000 denier Cordura.

Temperature: Up to 250° F (oven heat)
Welding spall/sparks: Up to 800° F (spot heat)
Best choice for abrasion applications; well suited for welding spall, ballast rock, oil shale.
Applications: Welding, cutting, hot tar and asphalt, spray foam polymers

18411 Material

EJ-1650: Teflon coated fiberglass

Temperature: Up to 550° F (oven heat)
Welding spall/sparks: Up to 1000° F (spot heat)
Mild abrasion
Excellent acid chemical resistance
Application: robotic welding, hot tar, asphalt, hot chemical, wire and hose protection near external exhaust.

Teflon Coated Fiberglass: EJ-1650

Close-up of sleeve with insulation and high temperature hook and loop closure

Suburban Sidewinder Sleeve® - HT

1. The System - Start with the Cover (Continued…)

24B-60 Weld Shield: High FR neoprene coated fiberglass
Temperature: Up to 400° F (oven heat)
Welding spall/sparks: Up to 1000° F (spot heat)
Not suited for abrasion
Applications: Welding, cutting, Outer barrier for most engine applications.
All hot hose applications as a cover.

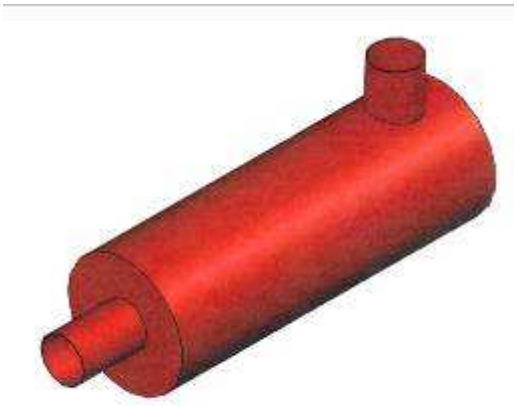
Weld Shield

Insulflex 1600: Silicone coated fiberglass (Core cover material, for engine applications, 16 oz natural)
Temperature: Up to 550° F oven heat
Core fabric E-glass is rated: 1200° F
Not suited for abrasion
Applications: Used on 95% of exhaust covers and sleeve products made.

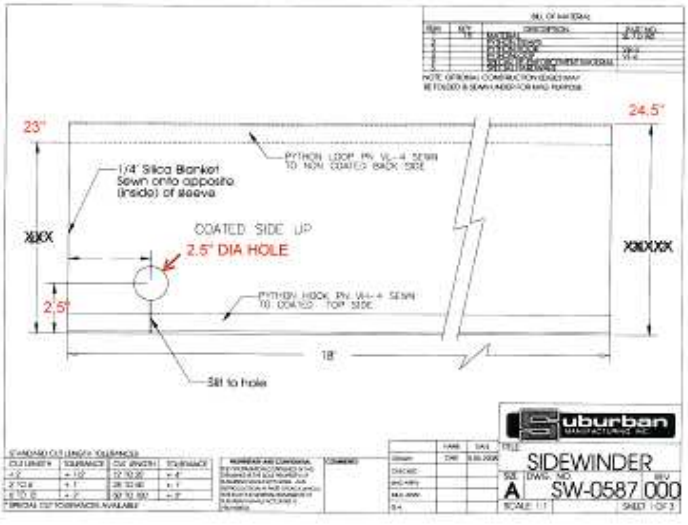
Silicone Coated Fiberglass

1750SA-2: Silicone coated fiberglass (Heavier cover material 17oz Plus)
Temperature: Up to 550° F oven heat
Core fabric E-glass is rated: 1200° F (spot heat)
Mild abrasion
Applications: Exhaust sleeves and covers where rub contact of hoses or wiring may occur.

3000SA-2: Heavy silicone coated e-glass (34 oz and is 0.32" thick)
Temperature: Up to 550° F oven heat
Core fabric E-glass is rated: 1200° F (spot heat)
Mild abrasion



Muffler outline drawing



Custom sleeve with snaps for easy installation on Muffler

Suburban Sidewinder Sleeve® - HT

2. Insulation Materials: Select One

Tempmat: E-Glass Needle Felt
Standard use ¼”
Special use ½”
Temperature: 1000° F Continuous
1200° F Peak

Refrasil1800: Amorphous Silica fiber needle felt
Standard use ¼”
Special use ½”
Temperature: 1800° F Continuous
2500° F Peak

Ceramic Fiber Mat
Standard use ½”
Temperature: 2400° F Continuous
2900° F Intermittent

3. Liners: Select One

1. 2025-9383C-2: 17 oz woven fiberglass fabric, uncoated.
This is sewn in as a liner to protect and support the needle felt.
Recommended for parts that will be removed and reinstalled occasionally.
Temperature: 1100° F Hot face
1500° F Peak

2. 1200HT-O: 12 oz Amorphous silica woven fabric, uncoated.
This is sewn in as a liner on any extremely high temp sleeves.
Temperature: 1800° F Hot face
2500° F Peak

3. Stainless Steel Mesh:
0.008” Liner
Temperature: 1000° F

4. Threads

Threads (Select One):

Texs50: Twaron 30/3 thread
Temperature: Up to 800° F Max

KSS10-1: Kevlar/stainless steel thread. Filament Kevlar/.002type 304 SS
Temperature: Up to 1500° F

Suburban Sidewinder Sleeve® - HT

5. Hardware

Sidewinder HT offers a wide choice of hardware, closures, and straps. We offer these options so that this system can address not only the heat requirement but the ease and speed of installation and vibration abrasion. These options also make maintenance easy and offer a range of cost options.

Abrasion areas like: muffler clamps, exhaust flanges, bolt studs. Reinforcement with stainless mesh or fiberglass webbing

Nomex Hook and Loop:

This closure makes installation and maintenance a breeze.
Allows for adjustability and forgives minor misalignment.
Standard Operating Temperature: 350° F

Heavy Duty Steel Snaps:

Positive true aligned closure. Normally installed on an edge flap with an overlap for best sealing.

Stainless Steel Zip Ties:

5/16 Stainless zip ties can be used in stitched pockets around a sleeve or loose external.

Stainless Quick Release Clamps:

Quick release stainless worm gear clamps are an inexpensive heavy duty solution that install in stitched pockets or loose external.

Fiberglass Web Straps:

1.0” or 1.5” wide
Economical high temp web straps with metal buckles can be sewn on the sleeve or used loose externally.
Temperature: 1100° F Continuous
1500° F Intermittent

Turbo Cover

Suburban Sidewinder Sleeve® - HT

HT Sleeve Design considerations

Designing a sleeve or cover is a series of choices based on application parameters, installation requirements and budget.

1. What is the goal?
    - Momentary operator protection?
    - Radiant heat reduction to protect other components?
    - Ancillary cable/hose protection from heat source?
    - Total heat containment:
        - ♦Preventing radiant heat rise?
        - ♦To maintain maximum temperature for particulate filters?
        - ♦Parasitic heating of hydraulics in ultra cold environments?
    - Will the part be exposed to the elements or enclosed?
    - Will the part be subject to abrasion or wash down?
    - Target cost?
2. Intallation requirements:
    - Ease of Installation
        - ♦Production assembly time - easy to install
        - ♦Position of closure, sensor ports or flange obstructions
        - ♦Horizontal or vertical positioning
        - ♦Vibration, high temperature and/or abrasion concerns
        - ♦Service work - easy to remove
        - ♦Permanently installed

Consider the following examples:

- If a sleeve is intended to be permanently installed, but the installation proves to be difficult due to space limitations, it may be necessary to use a multiple piece sleeve and secure the pieces with stainless steel gear clamps.
- If the surface of a part to be protected reaches a peak operating temperature of 1300°F, but the ambient temp is controlled by good air flow, you can use a silica liner (1800F) with a lower cost Glass Tempmat (1200F peak) and the standard cover (Insulflex 1600).

Answers to these questions helps determine which materials and designs are best for the application.

Diamondback Sleeve®

Line of Sight ▪ Abrasion Protection ▪ Bundling ▪ OEM

- Meets new line of sight operator specification EN982 ISO norm 833 EN414
- Ultra tight construction contains oil spillage from pin hole leaks
- Tight, smooth surface resists wear
- 50% less bulky than Cordura
- Densely twisted yarn offers optimum UV and abrasion protection
- Meets abrasion standard ISO 6945
- Meets conductivity standard ISO 8031
- MSHA approved
- Cut to length is easy

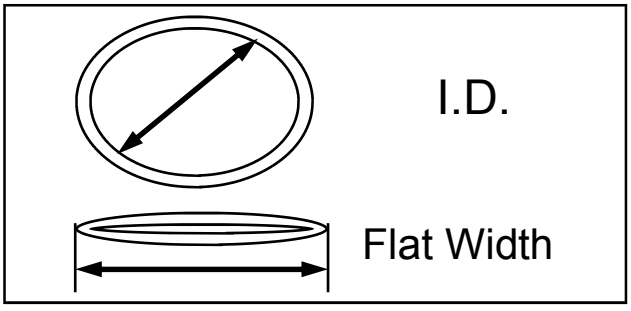
One full Roll is 300 ft
SOLD in increments of:
75 ft, 150 ft, or 300 ft

Part#	Flat Width	I.D.
TEXS17	1.18	.67
TEXS20	1.22	.79
TEXS23	1.54	.91
TEXS25	1.65	.98
TEXS27	1.77	1.06
TEXS31	2.05	1.22
TEXS36	2.24	1.42
TEXS40	2.60	1.57
TEXS44	2.83	1.73
TEXS47	3.03	1.85
TEXS55	3.50	2.17
TEXS60	3.82	2.36
TEXS73	4.65	2.87
TEXS75	4.76	2.95
TEXS93	5.87	3.66

Shown:

300 ft rolls in dispenser

Tubular Sleeve Dispenser
Part Number 21999-0295



Diamondback Sleeve®

Cross Reference Sheet and Sizing Chart

Diamondback Sleeve	Flat Width	I.D.	Aeroquip	Federal Mogul	Gates	Partec	Protec	Weatherhead
Part Number	Inches		X-OVER.090 thick	X-OVER.090 thick	X-OVER.090 thick	X-OVER.090 thick	X-OVER.090 thick	X-OVER.090 thick
TEXS17	1.18	0.67	FC425-12 (.71) tight		10-HG (.68)	AS-B-11 (.69) tight	NHS-071(.71) tight	
TEXS20	1.22	0.79		PG-12 (.75 D)			NHS-077 (.77)	
TEXS23	1.54	0.91	FC425-15 (.92)		14-HG (.90)	AS-B-13 (.86)	NHS-090 (.90)	A3900 (.90)
TEXS25	1.65	0.98	FC425-16 (1.00) tight				NHS-100(1.00) tight	
TEXS27	1.77	1.06	FC425-18 (1.13) tight	PG-12 (1.0 D)	16-HG (1.06)	AS-B-15 (1.06)		A3901 (1.06)
TEXS31	2.05	1.22	FC425-20 (1.25) tight		20-HG (1.22)	AS-B-17 (1.22)	NHS-114 (1.14)	A3902 (1.22)
				PG-20 (1.25 D)		AS-B-19 (1.35)	NHS-130 (1.30)	A3903 (1.35)
TEXS36	2.24	1.42			24-HG (1.42)	AS-B-22 (1.42)	NHS-138 (1.38)	
				PG-24 (1.50 D)			NHS-153 (1.53)	
TEXS40	2.6	1.57	FC425-24 (1.59) tight					
						AS-B-27 (1.63)		
TEXS44	2.83	1.73	FC425-28 (1.75) tight					A3904 (1.66)
TEXS47	3.03	1.85		PG-28 (1.75 D)	28-HG (1.81)	AS-B-33 (1.81)		A3905 (1.81)
				PG-32 (2.00 D)				
TEXS55	3.5	2.17	FC425-32 (2.07)		32-HG(2.19) tight	AS-B-35 (2.19) tight		A3906 (2.19) tight
TEXS60	3.82	2.36	FC425-38 (2.38) tight	PG-36 (2.25 D)	38-HG(2.38) tight	AS-B-37 (2.38) tight		
			FC425-40 (2.54)	PG-40 (2.50 D)				
					42-HG(2.62) tight	AS-B-39 (2.63) tight		A3907 (2.62)
TEXS73	4.65	2.87	FC425-46 (2.86)	PG-44 (2.75 D)	46-HG(2.88) tight			
TEXS75	4.76	2.95		PG-76 (3.00 D) tight				
			FC425-54 (3.34)			AS-B-47 (3.13)		
TEXS93	5.87	3.66	FC425-59 (3.66)			AS-B-58 (3.63)		
					64-GH (4.40)			

Diamondback Sleeve®

OEM ▪ Line of Sight ▪ Abrasion Protection ▪ Bundling

Diamondback Sleeve
Optimum OEM "Line of Sight" Operator Protection

Pressurized hydraulic hoses are a potential major hazard. Hose leaks can lead to serious injection injuries to equipment operators. New legislation and amended safety regulations now require hoses within one meter of an operator to be covered with protective sleeve.

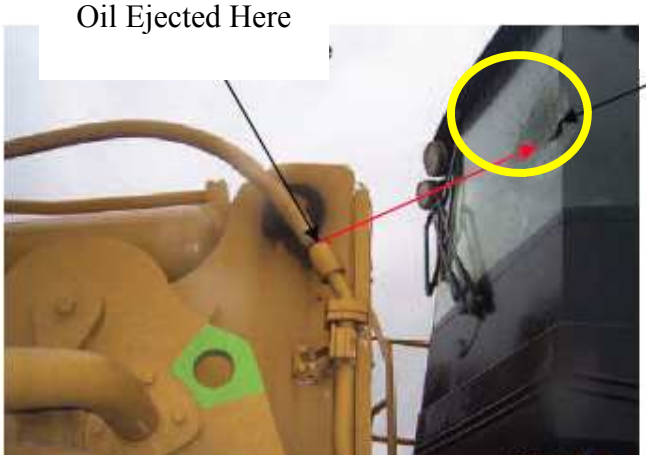
Typical wear sleeve is not designed to protect operator from high pressure pin hole leaks or hose bursts.

Diamondback Sleeve was engineered specifically to meet the EU Machinery Directive 2006/42/EC as well as the NSW "Guideline for Fluid Power System Safety at Mines"

Diamondback uses a proprietary engineered fiber.
It is needle woven very tightly and heat treated which shrinks the sleeve about 8% to the finished dimension. When a hose bursts, the oil is released in an explosion of expanding energy. This release impacts the sleeve; the engaging fibers absorb the energy at the cross over points where the sleeve fibers are interwoven. The ultra tight weave flexes, deflects the energy and resists oil loss, reducing environmental impact.

- Meets EU operator protection directive
  - EN982
  - ISO Norm 833
  - EN414
  - ISO 3457
  - MDG 41 Mines Safety
  - EN500-1
- Dense weave and heat treat offers excellent U.V protection
- Meets ASTM D6770 for abrasion resistance
- Meets ISO 6945 for abrasion tested over 250,000 cycles
- Meets FED-STD191-Test method 5309 for abrasion resist.
- Meets conductivity standard ISO 8031
- Pin hole tested to 4000 PSI, Burst tested to 10,000 PSI*
- MSHA approved #IC-234/0 & IC-2340/01

Oil Ejected Here



Oil Hit Glass Here

Diamondback Sleeve®

Toughest Single Line Hose Protection - Period!

Hose Dash Size	Multiplier
-4*	1.44
-6*	1.50
-8*	1.55
-10*	1.63
-12*	1.67
-16	1.70
-20	1.81
-24	2.00
-32	2.50

{Proper Sizing is hose OD x Multiplier = Proper Sleeve ID (always round up)

*Hose burst and pinhole leak tests have been conducted using identical test parameters for both clamped and unclamped sleeves. The test results show proper sleeve sizing is critical to achieve proper Protection.

Sleeve should be cut 2" longer than hose length

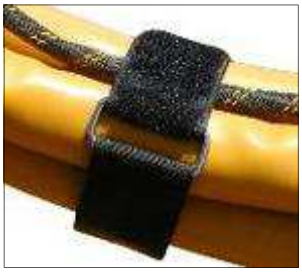
Band-it clamps are recommended for securing sleeve to the coupling.
All Information listed is based on new product only. Any degradation of this product by environment or application will affect performance.
Proper use of product is the sole responsibility of the user.

ISO 3457:2003(E) 9.1: Hoses containing fluid at pressures exceeding 725 PSI or temperatures above 60° C (140° F) located within 1 meter of the operator in the normal operating position and whose direct spray (in case of failure) can reach the operator - shall be guarded.

Python® Cinch Straps & Hanging Straps

Cinch Straps

Standard Duty Cinch Strap



Heavy Duty Cinch Strap

Hanging Straps

Standard Duty Hanging Strap

Heavy Duty Hanging Strap

All grommets are nickel plated brass grommets

Why Python® Cinch Straps & Python® Hanging Straps?

1. Allows hose to expand & contract, which eliminates damage related to using nylon ties.
2. Many sizes to choose from, dependable, bundles and secures multiple hoses or cables.
3. Fast and dependable, can cut installation time by 50%, NO tools required.
4. Excellent Resistance to UV
5. The closure is Mil-Spec extreme Python Hook & Loop. They will not fall off.
6. Thousands of uses: OEM's Worldwide, Fire Departments, Agricultural Equipment, etc.

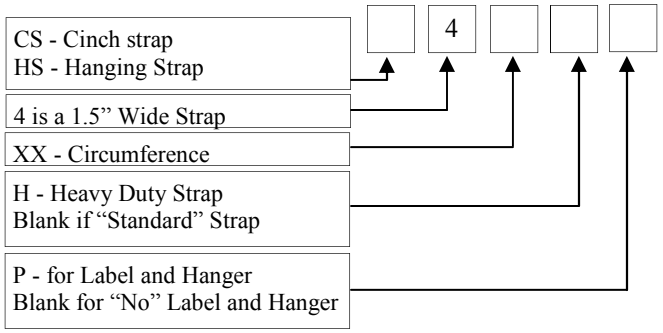
Heavy Duty Python Hanging Straps used to route hydraulic hoses

Python Cinch Strap used by Fire Department

Available in Many Different Sizes

Available in:

- Standard duty has a delrin (plastic) Buckle
- Heavy Duty has nickel plated steel buckle
- Hanging straps have a grommet to mount strap
- Label and Peg Board Hanger



		Cinch Straps		Hanging Straps	
D=Diameter of Bundle (in Inches)	**Circumference of Bundle (in Inches)**	**Standard Duty**	**Heavy Duty**	**Standard Duty**	**Heavy Duty**
1.3	4	CS404	CS404H	HS404	HS404H
1.9	6	CS406	CS406H	HS406	HS406H
2.5	8	CS408	CS408H	HS408	HS408H
3.2	10	CS410	CS410H	HS410	HS410H
3.8	12	CS412	CS412H	HS412	HS412H
4.5	14	CS414	CS414H	HS414	HS414H
5.1	16	CS416	CS416H	HS416	HS416H
5.7	18	CS418	CS418H	HS418	HS418H
6.4	20	CS420	CS420H	HS420	HS420H
7.0	22	CS422	CS422H	HS422	HS422H
7.6	24	CS424	CS424H	HS424	HS424H
8.3	26	CS426	CS426H	HS426	HS426H
8.9	28	CS428	CS428H	HS428	HS428H
9.6	30	CS430	CS430H	HS430	HS430H
10.2	32	CS432	CS432H	HS432	HS432H
11.5	36	CS436	CS436H	HS436	HS436H
14.0	44	CS444	CS444H	HS444	HS440H
		Peg Board Hanger Included: These parts include a "P" at end of part number			
1.3	4	CS404P	CS404HP	HS404P	HS404HP
1.9	6	CS406P	CS406HP	HS406P	HS406HP
2.5	8	CS408P	CS408HP	HS408P	HS408HP
3.8	12	CS412P	CS412HP	HS412P	HS412HP
5.1	16	CS416P	CS416HP	HS416P	HS416HP
6.4	20	CS420P	CS420HP	HS420P	HS420HP

Specialty Straps:

Heavy Duty Non Skid Strap

Heavy Duty Strap with Reflective Insert

High Visibility Standard Duty Strap

Suburban MANUFACTURING, INC.

www.gosuburban.com

Python® Merchandiser Display Kits

Increase Your Strap Sales with a Python Straps® Merchandiser Display

Features

- Selection of either standard duty or heavy duty straps
- Each kit includes both cinch and hanging straps
- Re-order only the sizes you need

- Thousands of uses
- Straps are adjustable
- Showroom tested
- Combine straps to make any length

Merchandiser Display Kits

KS-0001	40 Heavy Duty Straps	20 Hanging, 20 Non-Hanging Cinch Straps
KS-0002	80 Standard Duty Straps	8 different sizes - 10 of each size Cinch Straps
SW-0492	60 Straps - Mixed	40 Standard Duty & 20 Heavy Duty Hanging