since 1874 listerfluidpower

INTRODUCING

# SPARTAN SUPERFLEX®

## ENGINEERED TO IMPRESS

ABOUT US

since 1874 lister fluidpower

# Unleashing Power, Optimising Performance.

For over five decades, Lister Fluid Power has been a cornerstone of Britain's fluid power industry delivering innovative solutions that keep critical sectors moving.

As a division of **James Lister & Sons Ltd., established in 1874**, we've evolved from our roots in industrial supplies to become specialists in hydraulic hose assemblies, fluid power optimisation and engineering services.

Grounded in over 150 years of heritage, we're driven by the same values today: reliability, innovation and relentless support for British manufacturing.

Our journey reflects a steadfast commitment to innovation and excellence. As technology has evolved, so have we, continuously adapting to meet the changing demands of the markets we serve. Whether it's precision hydraulic systems, custom-engineered solutions, or dependable on-site support, **Lister Fluid Power is synonymous with quality, reliability and expertise.**

Today, we stand as a trusted engineering partner to industries spanning **manufacturing, agriculture, construction, transportation** and beyond, ensuring smooth operations with efficient hydraulic power transmission built using durable hydraulic hoses and fittings. From custom hydraulic hose assembly to on-site support and hydraulic system optimisation, we not only supply products, but also deliver tailored solutions that enhance efficiency, reduce downtime and improve performance.


# The Hydraulic Hose that OEMs Demanded

For years, **manufacturers have paid a premium** for over-accreditation and excessive corporate overheads.

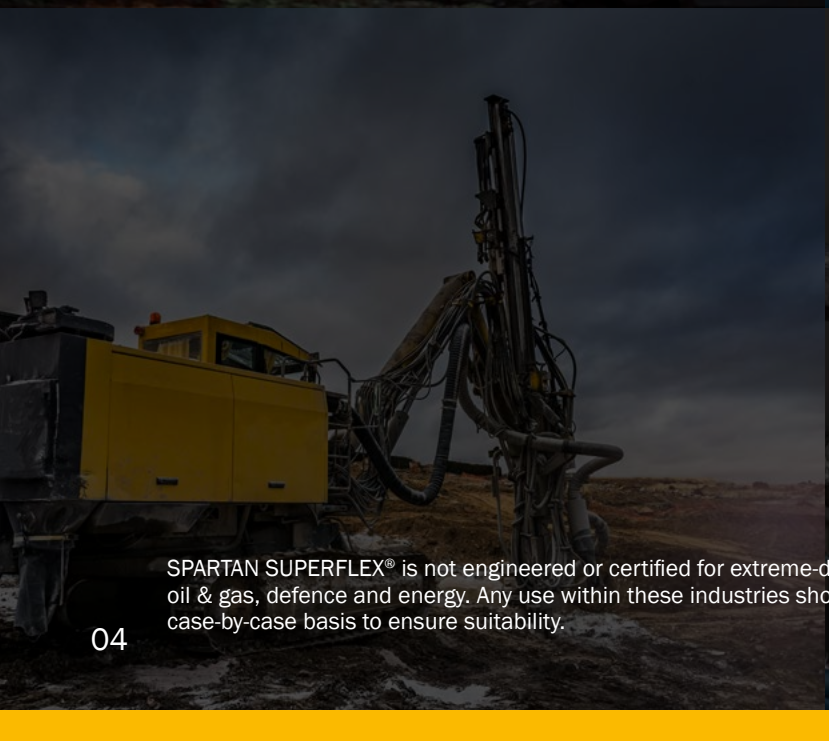
## That changes with SPARTAN SUPERFLEX®.

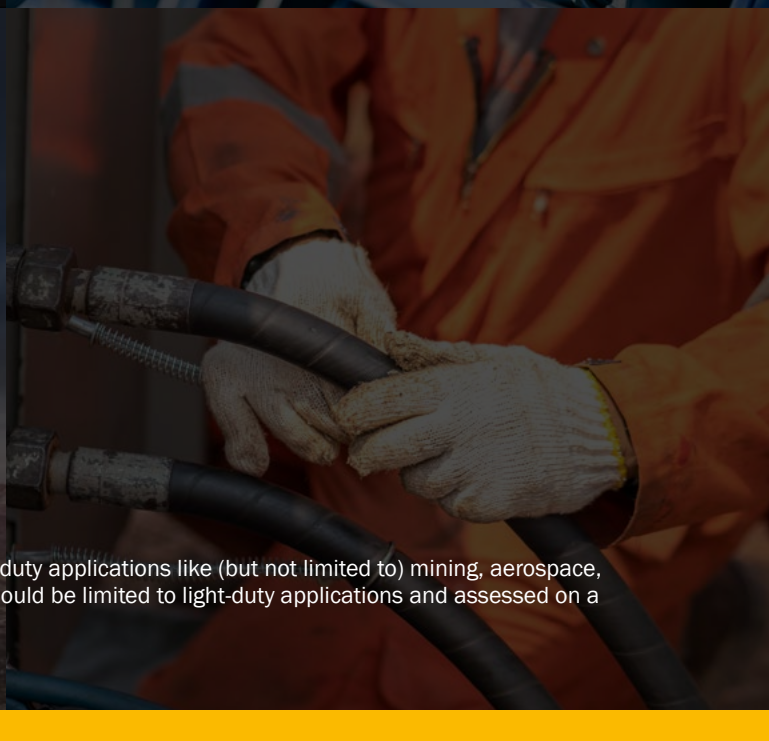
Engineered to meet global standards without unnecessary complexity, SPARTAN SUPERFLEX® is a **fit-for-purpose highly flexible hydraulic hose range** designed for OEMs and MROs who value reliability, flexibility and long-term efficiency **without paying for excessive accreditations** not relevant to their industry.

SPARTAN SUPERFLEX® is manufactured by a globally renowned hose producer with over 70 years of expertise, at a state-of-the-art facility in India, and is backed by Lister Fluid Power's engineering heritage.

## IDEAL FOR APPLICATIONS

- Construction
- Manufacturing
- Agriculture
- Forestry
- Transport
- Waste Management
- Maintenance





SPARTAN SUPERFLEX® is not engineered or certified for extreme-duty applications like (but not limited to) mining, aerospace, oil & gas, defence and energy. Any use within these industries should be limited to light-duty applications and assessed on a case-by-case basis to ensure suitability.

# DASH, DN, INCH CONVERSION TABLE

| DASH EXPRESSION | INCH SIZE | DN EXPRESSION |
|---|---|---|
| -3 | 3/16 | 5 |
| -4 | 1/4 | 6 |
| -5 | 5/16 | 8 |
| -6 | 3/8 | 10 |
| -8 | 1/2 | 12 |
| -10 | 5/8 | 16 |
| -12 | 3/4 | 19 |
| -14 | 7/8 | 22 |
| -16 | 1 | 25 |
| -18 | 1-1/8 | 28/29* |
| -20 | 1-1/4 | 32 |
| -24 | 1-1/2 | 38 |
| -32 | 2 | 51 |
| -40 | 2-1/2 | 63 |
| -48 | 3 | 76 |
| -64 | 4 | 102 |

Disclaimer: Sizes and DN values are approximate and may vary by manufacturer. Always refer to product-specific technical data for exact dimensions.

# CERTIFICATIONS

CTPAT™ YOUR SUPPLY CHAIN'S STRONGEST LINK.

Score 2019 : 99% ***(By SGS)***

**VDA 6.3**

***(By SGS),***
***Social Audit (By TUV)***

U.S. Department of Labor MSHA Mine Safety & Health Administration

Material Compliance to
**ROHS and REACH**

SPARTAN SUPERFLEX

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COMPACT HOSE

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RHINOTUFF COVER
COMPACT HOSE

# SAE 100 R1 AT/ EN 853 1SN

## 1-WIRE BRAID HYDRAULIC HOSE
## FLAME-RESISTANT ‘MSHA’ COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

One braid of high-tensile steel wire

**Cover:**

Oil and ozone-resistant NBR/PVC (Black.

(CR cover available on request.) MSHA certified.

**Temperature range:**

From -40°C to +100°C, continuous operation. For air max temperature = +70°C

**Main applications:**

Medium-pressure hydraulic lines, fuel oil, antifreeze solutions, air and water. Conforms to SAE 100 R1/ EN853 1SN and ISO 1436-1 specifications. Cover finish available from 1/4” to 3/4” ID in smooth and wrap finish. Sizes from 1” to 2” will be available in wrap finish only.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 R1 | 1/4 | 6.3 | 13 | 10.9 | 3250 | 225 | 13060 | 900 | 100 |
| 5 R1 | 5/16 | 8 | 14.4 | 12.3 | 3100 | 215 | 12480 | 860 | 115 |
| 6 R1 | 3/8 | 9.5 | 17.1 | 15.2 | 2600 | 180 | 10400 | 720 | 125 |
| 8 R1 | 1/2 | 12.5 | 20.1 | 17.9 | 2320 | 160 | 9280 | 640 | 180 |
| 10 R1 | 5/8 | 15.9 | 23.2 | 21.0 | 1885 | 130 | 7540 | 520 | 205 |
| 12 R1 | 3/4 | 19 | 27.3 | 25.3 | 1525 | 105 | 6100 | 420 | 240 |
| 16 R1 | 1 | 25 | 35.3 | 33 | 1275 | 88 | 5100 | 352 | 300 |
| 20 R1 | 1-1/4 | 31.5 | 43.1 | 40.5 | 915 | 63 | 3660 | 248 | 420 |
| 24 R1 | 1-1/2 | 38 | 49.2 | 46.5 | 725 | 50 | 2900 | 200 | 500 |
| 32 R1 | 2 | 51 | 62.6 | 60 | 580 | 40 | 2320 | 160 | 630 |

# RHINOTUFF COVER
# SAE 100 R1 AT/EN 853 1SN

## 1-WIRE BRAID HYDRAULIC HOSE
## FLAME-RESISTANT ‘MSHA’ COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

One braid of high-tensile steel wire

**Cover:**

High-abrasion-resistant, oil and ozone-resistant synthetic rubber — MSHA certified.

**Temperature range:**

From -40 °C to +100 °C, continuous operation. For air max Temperature = +70 °C.

**Main applications:**

Medium-pressure hydraulic lines, fuel oil, antifreeze solutions, air and water. Conforms to SAE 100 R1 / EN853 1SN and ISO 1436-1 specifications. Cover Finish available from 1/4” to 3/4” ID in smooth and wrap finish. Sizes from 1” to 2” will be available in wrap finish only.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 R1 Rhinotuff | 1/4 | 6.3 | 13 | 10.9 | 3250 | 225 | 13060 | 900 | 100 |
| 5 R1 Rhinotuff | 5/16 | 8 | 14.4 | 12.3 | 3100 | 215 | 12480 | 860 | 115 |
| 6 R1 Rhinotuff | 3/8 | 9.5 | 17.1 | 15.2 | 2600 | 180 | 10400 | 720 | 125 |
| 8 R1 Rhinotuff | 1/2 | 12.5 | 20.1 | 17.9 | 2320 | 160 | 9280 | 640 | 180 |
| 10 R1 Rhinotuff | 5/8 | 15.9 | 23.2 | 21.0 | 1885 | 130 | 7540 | 520 | 205 |
| 12 R1 Rhinotuff | 3/4 | 19 | 27.3 | 25.3 | 1525 | 105 | 6100 | 420 | 240 |
| 16 R1 Rhinotuff | 1 | 25 | 35.3 | 33 | 1275 | 88 | 5100 | 352 | 300 |
| 20 R1 Rhinotuff | 1-1/4 | 31.5 | 43.1 | 40.5 | 915 | 63 | 3660 | 248 | 420 |
| 24 R1 Rhinotuff | 1-1/2 | 38 | 49.2 | 46.5 | 725 | 50 | 2900 | 200 | 500 |
| 32 R1 Rhinotuff | 2 | 51 | 62.6 | 60 | 580 | 40 | 2320 | 160 | 630 |

# SAE 100 R2 AT / EN 853 2SN

## 2-WIRE BRAID HYDRAULIC HOSE
## FLAME-RESISTANT ‘MSHA’ COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

Two braids of high-tensile steel wire

**Cover:**

Oil and ozone-resistant NBR/PVC (Black)

(CR cover available on request) MSHA certified.

**Temperature range:**

From -40°C to +100°C, continuous operation.

For air max temperature = +70°C

**Main applications:**

High-pressure hydraulic lines, fuel oil, antifreeze solutions, air and water. Conforms to SAE 100 R2/ EN853 2SN and ISO 1436-2 specifications. Cover Finish available from 1/4” to 3/4” ID in smooth and wrap finish. Sizes from 1” to 2” will be available in wrap finish only.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 R2 | 1/4 | 6.3 | 14.7 | 12.8 | 5800 | 400 | 23200 | 1600 | 100 |
| 5 R2 | 5/16 | 8 | 16.4 | 14.2 | 5075 | 350 | 20300 | 1400 | 115 |
| 6 R2 | 3/8 | 9.5 | 18.5 | 16.4 | 4785 | 330 | 19140 | 1320 | 125 |
| 8 R2 | 1/2 | 12.5 | 21.8 | 19.9 | 4000 | 275 | 16000 | 1100 | 180 |
| 10 R2 | 5/8 | 15.9 | 25 | 22.7 | 3625 | 250 | 14500 | 1000 | 205 |
| 12 R2 | 3/4 | 19 | 28.9 | 26.9 | 3120 | 215 | 12480 | 860 | 240 |
| 16 R2 | 1 | 25 | 36.8 | 34.6 | 2395 | 165 | 9580 | 660 | 300 |
| 20 R2 | 1-1/4 | 31.5 | 46.4 | 43.8 | 1815 | 125 | 7260 | 500 | 420 |
| 24 R2 | 1-1/2 | 38 | 52.8 | 50.1 | 1305 | 90 | 5220 | 360 | 500 |
| 32 R2 | 2 | 51 | 64.8 | 62.2 | 1160 | 80 | 4640 | 320 | 630 |

# RHINOTUFF COVER
# SAE 100 R2 AT/EN 853 2SN

## 2-WIRE BRAID HYDRAULIC HOSE
## FLAME-RESISTANT ‘MSHA’ COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

Two braids of high-tensile steel wire.

**Cover:**

High-abrasion-resistant, oil and ozone-resistant synthetic rubber — MSHA certified.

**Temperature range:**

From -40°C to +100°C, continuous operation.

For air max temperature = +70°C

**Main applications:**

High-pressure hydraulic lines, fuel oil, antifreeze solutions, air and water. Conforms to SAE 100 R2/EN 853 2SN and ISO 1436-2 specifications. Cover finish available from 1/4” to 3/4” ID in smooth and wrap finish. Sizes from 1” to 2” will be available in wrap finish only.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 R2 Rhinotuff | 1/4 | 6.3 | 14.7 | 12.8 | 5800 | 400 | 23200 | 1600 | 100 |
| 5 R2 Rhinotuff | 5/16 | 8 | 16.4 | 14.2 | 5075 | 350 | 20300 | 1400 | 115 |
| 6 R2 Rhinotuff | 3/8 | 9.5 | 18.5 | 16.4 | 4785 | 330 | 19140 | 1320 | 125 |
| 8 R2 Rhinotuff | 1/2 | 12.5 | 21.8 | 19.9 | 4000 | 275 | 16000 | 1100 | 180 |
| 10 R2 Rhinotuff | 5/8 | 15.9 | 25 | 22.7 | 3625 | 250 | 14500 | 1000 | 205 |
| 12 R2 Rhinotuff | 3/4 | 19 | 28.9 | 26.9 | 3120 | 215 | 12480 | 860 | 240 |
| 16 R2 Rhinotuff | 1 | 25 | 36.8 | 34.6 | 2395 | 165 | 9580 | 660 | 300 |
| 20 R2 Rhinotuff | 1-1/4 | 31.5 | 46.4 | 43.8 | 1815 | 125 | 7260 | 500 | 420 |
| 24 R2 Rhinotuff | 1-1/2 | 38 | 52.8 | 50.1 | 1305 | 90 | 5220 | 360 | 500 |
| 32 R2 Rhinotuff | 2 | 51 | 64.8 | 62.2 | 1160 | 80 | 4640 | 320 | 630 |

# SAE 100 R3

## 2-YARN BRAID HYDRAULIC HOSE


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

Two braids of high-tenacity yarn.

**Cover:**

Oil and ozone-resistant NBR/PVC (Black)

(CR cover available on request)

**Temperature range:**

From -40°C to +100°C, continuous operation.

For air max temperature =+70°C

**Main applications:**

Hydraulic applications in low pressure lines, return lines and drain lines. Fuel oil, antifreeze solutions, air and water. Conforms to SAE 100 R3 Specification.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 R3 | 1/4 | 6.3 | 15 | 1262 | 87 | 5046 | 348 | 75 |
| 5 R3 | 5/16 | 8 | 17.8 | 1200 | 83 | 4800 | 332 | 100 |
| 6 R3 | 3/8 | 9.5 | 18.8 | 1125 | 78 | 4500 | 312 | 100 |
| 8 R3 | 1/2 | 12.5 | 23.4 | 1000 | 69 | 4000 | 276 | 125 |
| 10 R3 | 5/8 | 15.9 | 27 | 875 | 61 | 3500 | 244 | 140 |
| 12 R3 | 3/4 | 19 | 31.7 | 750 | 52 | 3000 | 208 | 150 |
| 16 R3 | 1 | 25 | 38.5 | 565 | 39 | 2260 | 156 | 200 |
| 20 R3 | 1-1/4 | 31.5 | 44.4 | 375 | 26 | 1500 | 104 | 250 |
| 24 R3 | 1-1/2 | 38 | 51 | 300 | 21 | 1200 | 84 | 400 |

# SAE 100 R6

## 1-YARN BRAID HYDRAULIC HOSE


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

One braid of high-tenacity yarn.

**Cover:**

Oil and ozone-resistant NBR/PVC (Black)

(CR cover available on request)

**Temperature range:**

From -40°C to +100°C, continuous operation.

For air max temperature =+70°C

**Main applications:**

Hydraulic applications in low pressure lines, return lines and drain lines. Fuel oil, antifreeze solutions, air and water. Conforms to SAE 100 R6 Specification.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 R6 | 1/4 | 6.3 | 12.8 | 400 | 28 | 1600 | 112 | 65 |
| 5 R6 | 5/16 | 8 | 14 | 400 | 28 | 1600 | 112 | 75 |
| 6 R6 | 3/8 | 9.5 | 16 | 400 | 28 | 1600 | 112 | 75 |
| 8 R6 | 1/2 | 12.5 | 19.7 | 400 | 28 | 1600 | 112 | 90 |
| 10 R6 | 5/8 | 15.9 | 23.2 | 350 | 24 | 1400 | 96 | 125 |
| 12 R6 | 3/4 | 19 | 26.4 | 300 | 21 | 1200 | 84 | 150 |
| 16 R6 | 1 | 25 | 33.5 | 205 | 14 | 820 | 56 | 200 |

# SAE 100 R6 (HI-TEMP)

## 1-YARN BRAID HYDRAULIC HOSE


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

One braid of high-tenacity yarn.

**Cover:**

Oil and ozone-resistant NBR/PVC (Black)

(CR cover available on request)

**Temperature range:**

From -40 °C to +135 °C, continuous operation.

For air max temperature = +100 °C.

**Main applications:**

Hydraulic applications in low pressure lines, return lines and drain lines. Fuel oil, antifreeze solutions, air and water. Conforms to SAE 100 R6 Specification.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 R6HT | 1/4 | 6.3 | 12.8 | 400 | 28 | 1600 | 112 | 65 |
| 5 R6HT | 5/16 | 8 | 14 | 400 | 28 | 1600 | 112 | 75 |
| 6 R6HT | 3/8 | 9.5 | 15.8 | 400 | 28 | 1600 | 112 | 75 |
| 8 R6HT | 1/2 | 12.5 | 19.5 | 400 | 28 | 1600 | 112 | 100 |
| 10 R6HT | 5/8 | 15.9 | 23 | 350 | 24 | 1400 | 96 | 125 |
| 12 R6HT | 3/4 | 19 | 26.4 | 300 | 21 | 1200 | 84 | 150 |
| 16 R6HT | 1 | 25 | 33.5 | 205 | 14 | 820 | 56 | 200 |

# SAE 100 R16 / EN 857 2SC

## 2-WIRE BRAID HYDRAULIC HOSE
## FLAME-RESISTANT ‘MSHA’ COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

Two braids of high-tensile steel wire

**Cover:**

Oil and ozone-resistant NBR/PVC (Black)

(CR cover available on request) MSHA certified.

**Temperature range:**

From -40°C to +100°C, continuous operation.

For air max temperature = +70°C

**Main applications:**

High-pressure hydraulic lines, fuel oil, antifreeze solutions, air and water. Conforms to SAE 100 R16 / EN 857 2SC specifications up to 1-1/4”. Sizes 1-1/2” to 2” are manufactured to the hose manufacturer’s proprietary specifications. Cover finish available from 1/4” to 3/4” ID in both smooth and wrap finishes. Sizes from 1” to 2” are supplied in wrap finish only.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 2SC | 1/4 | 6.3 | 13.6 | 11.9 | 5800 | 400 | 23200 | 1600 | 75 |
| 5 2SC | 5/16 | 8 | 15.1 | 13.1 | 5075 | 350 | 20300 | 1400 | 85 |
| 6 2SC | 3/8 | 9.5 | 17.1 | 15.5 | 4785 | 330 | 19120 | 1320 | 90 |
| 8 2SC | 1/2 | 12.5 | 20.4 | 18.2 | 4000 | 275 | 16000 | 1100 | 90 |
| 10 2SC | 5/8 | 15.9 | 23.8 | 22.2 | 3625 | 250 | 14500 | 1000 | 100 |
| 12 2SC | 3/4 | 19 | 27.6 | 25.2 | 3120 | 215 | 12480 | 860 | 120 |
| 16 2SC | 1 | 25 | 35 | 32.9 | 2395 | 165 | 9580 | 660 | 150 |
| 20 2SC | 1-1/4 | 31.5 | 42.5 | 40.1 | 1810 | 125 | 7240 | 500 | 210 |
| 24 2SC | 1-1/2 | 38 | 51.3 | 48 | 1450 | 100 | 5800 | 400 | 300 |
| 32 2SC | 2 | 50 | 63.8 | 61.6 | 1305 | 90 | 5220 | 360 | 400 |

# RHINOTUFF COVER COMPACT HOSE
# SAE 100 R16 / EN 857 2SC

## 2-WIRE BRAID HYDRAULIC HOSE
## FLAME-RESISTANT 'MSHA' COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

Two braids of high-tensile steel wire

**Cover:**

High-abrasion-resistant, oil and ozone-resistant synthetic rubber — MSHA certified.

**Temperature range:**

From -40°C to +100°C, continuous operation.

For air max temperature = +70°C

**Main applications:**

High-pressure hydraulic lines, fuel oil, antifreeze solutions, air and water. Conforms to SAE 100 R16 / EN 857 2SC specifications up to 1-1/4". Sizes 1-1/2" to 2" are manufactured to the hose manufacturer's own specifications. Cover finish available from 1/4" to 3/4" ID in both smooth and wrap finishes. Sizes from 1" to 2" are supplied in wrap finish only.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 2SC Rhinotuff | 1/4 | 6.3 | 13.6 | 11.9 | 5800 | 400 | 23200 | 1600 | 75 |
| 5 2SC Rhinotuff | 5/16 | 8 | 15.1 | 13.1 | 5075 | 350 | 20300 | 1400 | 85 |
| 6 2SC Rhinotuff | 3/8 | 9.5 | 17.1 | 15.5 | 4785 | 330 | 19120 | 1320 | 90 |
| 8 2SC Rhinotuff | 1/2 | 12.5 | 20.4 | 18.2 | 4000 | 275 | 16000 | 1100 | 90 |
| 10 2SC Rhinotuff | 5/8 | 15.9 | 23.8 | 22.2 | 3625 | 250 | 14500 | 1000 | 100 |
| 12 2SC Rhinotuff | 3/4 | 19 | 27.6 | 25.2 | 3120 | 215 | 12480 | 860 | 120 |
| 16 2SC Rhinotuff | 1 | 25 | 35 | 32.9 | 2395 | 165 | 9580 | 660 | 150 |
| 20 2SC Rhinotuff | 1-1/4 | 31.5 | 42.5 | 40.1 | 1810 | 125 | 7240 | 500 | 210 |
| 24 2SC Rhinotuff | 1-1/2 | 38 | 51.3 | 48 | 1450 | 100 | 5800 | 400 | 300 |
| 32 2SC Rhinotuff | 2 | 50 | 63.8 | 61.6 | 1305 | 90 | 5220 | 360 | 400 |

# FXFT SAE 100 R16 / EN 857 2SC

## 2-WIRE BRAID HYDRAULIC HOSE


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

Two braids of high-tensile steel wire.

**Cover:**

Oil and ozone-resistant NBR/PVC (Black)

**Temperature range:**

From -40 °C to +135 °C, continuous operation.

For air max temperature = +100 °C.

**Main applications:**

High-performance hose tested to 600,000 impulse cycles. Suitable for high-pressure hydraulic lines, including fuel oil, antifreeze solutions, air and water. Conforms to SAE 100 R16 / EN 857 2SC specifications. Sizes available from 1/4" to 1" ID in wrap finish.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 FXFT | 1/4 | 6.3 | 14.3 | 6090 | 420 | 24360 | 1680 | 75 |
| 6 FXFT | 3/8 | 9.5 | 17.5 | 5075 | 350 | 20300 | 1400 | 90 |
| 8 FXFT | 1/2 | 12.5 | 20.3 | 4060 | 280 | 16240 | 1120 | 90 |
| 10 FXFT | 5/8 | 15.9 | 24.2 | 3770 | 260 | 15080 | 1040 | 100 |
| 12 FXFT | 3/4 | 19 | 27.8 | 3250 | 225 | 13050 | 900 | 120 |
| 16 FXFT | 1 | 25 | 35.2 | 2530 | 175 | 10150 | 700 | 150 |

# CONSTANT PRESSURE COMPACT HOSE SAE 100 R17/ISO11237

## R17 WIRE BRAID HYDRAULIC HOSE FLAME-RESISTANT ‘MSHA’ COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

One or two braids of high-tensile steel wire

**Cover:**

Oil, abrasion and ozone-resistant NBR/PVC (Black)

(CR cover available on request) MSHA Certified

**Temperature range:**

From -40°C to +100°C, continuous operation.

For air max temperature = +70°C

**Main applications:**

Medium-pressure hydraulic lines suitable for petroleum-based hydraulic fluids, synthetic esters, biodegradable hydraulic fluids, water-glycol fluids and lubricating oils. Conforms to SAE 100 R17 / ISO 11237 R17 specifications.

Cover finish available from 1/4” to 1” ID in wrap finish.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 R17 | 1/4 | 6.3 | 12.6 | 10.6 | 3050 | 210 | 12200 | 840 | 50 |
| 5 R17 | 5/16 | 8 | 14.5 | 12.3 | 3050 | 210 | 12200 | 840 | 55 |
| 6 R17 | 3/8 | 9.5 | 16.2 | 14.2 | 3050 | 210 | 12200 | 840 | 65 |
| 8 R17 | 1/2 | 12.5 | 20 | 17.9 | 3050 | 210 | 12200 | 840 | 90 |
| 10 R17 | 5/8 | 15.9 | 24.3 | 22.6 | 3050 | 210 | 12200 | 840 | 100 |
| 12 R17 | 3/4 | 19 | 28 | 26.2 | 3050 | 210 | 12200 | 840 | 120 |
| 16 R17 | 1 | 25 | 36.3 | 34 | 3050 | 210 | 12200 | 840 | 150 |

# RHINOTUFF COVER CONSTANT PRESSURE COMPACT HOSE SAE 100 R17/ISO11237

## R17 WIRE BRAID HYDRAULIC HOSE FLAME-RESISTANT 'MSHA' COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

One or two braids of high-tensile steel wire

**Cover:**

High-abrasion-resistant, oil and ozone-resistant synthetic rubber — MSHA certified.

**Temperature range:**

From -40°C to +100°C, continuous operation.

For maximum air temperature of approximately +70°C.

**Main applications:**

Medium-pressure hydraulic lines suitable for petroleum-based hydraulic fluids, synthetic esters, biodegradable hydraulic fluids, water-glycol fluids and lubricating oils. Conforms to SAE 100 R17 / ISO 11237 R17 specifications. Cover finish available from 1/4" to 1" ID in smooth and wrap finish.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 R17 Rhinotuff | 1/4 | 6.3 | 12.6 | 10.6 | 3050 | 210 | 12200 | 840 | 50 |
| 5 R17 Rhinotuff | 5/16 | 8 | 14.5 | 12.3 | 3050 | 210 | 12200 | 840 | 55 |
| 6 R17 Rhinotuff | 3/8 | 9.5 | 16.2 | 14.2 | 3050 | 210 | 12200 | 840 | 65 |
| 8 R17 Rhinotuff | 1/2 | 12.5 | 20 | 17.9 | 3050 | 210 | 12200 | 840 | 90 |
| 10 R17 Rhinotuff | 5/8 | 15.9 | 24.3 | 22.6 | 3050 | 210 | 12200 | 840 | 100 |
| 12 R17 Rhinotuff | 3/4 | 19 | 28 | 26.2 | 3050 | 210 | 12200 | 840 | 120 |
| 16 R17 Rhinotuff | 1 | 25 | 36.3 | 34 | 3050 | 210 | 12200 | 840 | 150 |

# CONSTANT PRESSURE COMPACT HOSE SAE 100 R19/ISO11237

## R19 WIRE BRAID HYDRAULIC HOSE FLAME-RESISTANT 'MSHA' COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

Two braids of high-tensile steel wire

**Cover:**

Oil, abrasion and ozone-resistant NBR/PVC (Black)

(CR cover available on request) MSHA Certified

**Temperature range:**

From -40°C to +100°C, continuous operation.

For air temperature = +70°C.

**Main applications:**

Medium-pressure hydraulic lines suitable for petroleum-based hydraulic fluids, synthetic esters, biodegradable hydraulic fluids, water-glycol fluids and lubricating oils. Conforms to SAE 100 R19 specifications. Cover finish available from 1/4" to 1" ID in wrap finish only.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 R19 | 1/4 | 6.3 | 14.1 | 12 | 4050 | 280 | 16200 | 1120 | 50 |
| 5 R19 | 5/16 | 8 | 15.1 | 13.1 | 4050 | 280 | 16200 | 1120 | 55 |
| 6 R19 | 3/8 | 9.5 | 17.1 | 15.2 | 4050 | 280 | 16200 | 1120 | 65 |
| 8 R19 | 1/2 | 12.5 | 21.1 | 19 | 4050 | 280 | 16200 | 1120 | 90 |
| 10 R19 | 5/8 | 15.9 | 25.2 | 23.4 | 4050 | 280 | 16200 | 1120 | 100 |
| 12 R19 | 3/4 | 19 | 27.7 | 25.8 | 4050 | 280 | 16200 | 1120 | 120 |
| 16 r19 | 1 | 25 | 38.2 | 34.2 | 4050 | 280 | 16200 | 1120 | 150 |

# RHINOTUFF COVER CONSTANT PRESSURE COMPACT HOSE SAE 100R19/ISO11237

## R19 WIRE BRAID HYDRAULIC HOSE FLAME-RESISTANT 'MSHA' COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

Two braids of high-tensile steel wire

**Cover:**

Oil, abrasion and ozone-resistant NBR/PVC (Black)

(CR cover available on request) MSHA Certified.

**Temperature range:**

From -40°C to +100°C, continuous operation.

For air temperature = +70°C.

**Main applications:**

Medium-pressure hydraulic lines suitable for petroleum-based hydraulic fluids, synthetic esters, biodegradable hydraulic fluids, water-glycol fluids and lubricating oils. Conforms to SAE 100 R19 specifications. Cover finish available from 1/4" to 1" ID in smooth and wrap finish only.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 R19 Rhinotuff | 1/4 | 6.3 | 14.1 | 12 | 4050 | 280 | 16200 | 1120 | 50 |
| 5 R19 Rhinotuff | 5/16 | 8 | 15.1 | 13.1 | 4050 | 280 | 16200 | 1120 | 55 |
| 6 R19 Rhinotuff | 3/8 | 9.5 | 17.1 | 15.2 | 4050 | 280 | 16200 | 1120 | 65 |
| 8 R19 Rhinotuff | 1/2 | 12.5 | 21.1 | 19 | 4050 | 280 | 16200 | 1120 | 90 |
| 10 R19 Rhinotuff | 5/8 | 15.9 | 25.2 | 23.4 | 4050 | 280 | 16200 | 1120 | 100 |
| 12 R19 Rhinotuff | 3/4 | 19 | 27.7 | 25.8 | 4050 | 280 | 16200 | 1120 | 120 |
| 16 R19 Rhinotuff | 1 | 25 | 38.2 | 34.2 | 4050 | 280 | 16200 | 1120 | 150 |

# JACK HOSE IJ100

## 2-WIRE BRAID HYDRAULIC HOSE
## FLAME-RESISTANT ‘MSHA’ COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

Two braids of high-tensile steel wire

**Cover:**

Oil, abrasion and ozone-resistant NBR/PVC (Black)

MSHA certified.

**Temperature range:**

From -40°C to +100°C, continuous operation.

For air max temperature = +70°C

**Main applications:**

Industrial jack application. Designed to meet IJ100 R17 specification requirements.

Available with a smooth or wrap cover finish.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 JACK | 1/4 | 6.3 | 14.7 | 12.9 | 10500 | 725 | 21000 | 1450 | 100 |
| 6 JACK | 3/8 | 9.5 | 18.1 | 16.4 | 10500 | 725 | 21000 | 1450 | 125 |

# AGROTROLLEY 1-WIRE

## 1-WIRE BRAID HYDRAULIC HOSE


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

One braid of high-tensile steel wire.

**Cover:**

Oil and ozone-resistant NBR/PVC (Black)

**Temperature range:**

From -40°C to +100°C, continuous operation.

**Main applications:**

For use in tractor trolley applications only. Not to be used as a replacement for SAE 100 R1 hose.

Cover finish available in smooth and wrap finish.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 6 AGT-1WIRE | 3/8 | 9.5 | 17 | 15 | 2450 | 170 | 7350 | 510 | 125 |
| 8 AGT-1WIRE | 1/2 | 12.5 | 20 | 18 | 2000 | 140 | 6000 | 420 | 180 |

# AGROTROLLEY 2-WIRE

## 2-WIRE BRAID HYDRAULIC HOSE


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

Two braids of high-tensile steel wire.

**Cover:**

Oil and ozone-resistant NBR/PVC (Black)

**Temperature range:**

From -40°C to +100°C, continuous operation.

**Main applications:**

For use in tractor trolley applications only. Not to be used as a replacement for SAE 100 R2 hose.

Cover finish available in smooth and wrap finish.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 6 AGT-2WIRE | 3/8 | 9.5 | 17.9 | 15.7 | 3500 | 245 | 8750 | 615 | 125 |
| 8 AGT-2WIRE | 1/2 | 12.5 | 21.2 | 19 | 3500 | 245 | 8750 | 615 | 180 |

# COMPACT HOSES EN 857 1SC

## 1-WIRE BRAID HYDRAULIC HOSE
## FLAME-RESISTANT ‘MSHA’ COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

One braid of high-tensile steel wire.

**Cover:**

Oil and ozone-resistant NBR/PVC (Black)

(CR cover available on request) MSHA certified

**Temperature range:**

From -40°C to +100°C, continuous operation.

For air max temperature = +70°C

**Main applications:**

Medium-pressure hydraulic lines, fuel oil, antifreeze solutions, air and water. Conforms to EN 857 1SC specifications. Cover finish available from 1/4” to 3/4” ID in smooth or wrap finish. Sizes from 1” to 2” ID are available in wrap finish only.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 1SC | 1/4 | 6.3 | 12.4 | 10.3 | 3265 | 225 | 13000 | 900 | 75 |
| 5 1SC | 5/16 | 8 | 13.9 | 11.7 | 3100 | 215 | 12400 | 860 | 85 |
| 6 1SC | 3/8 | 9.5 | 15.8 | 13.8 | 2610 | 180 | 10440 | 720 | 90 |
| 8 1SC | 1/2 | 12.5 | 19.1 | 17.1 | 2320 | 160 | 9280 | 640 | 130 |
| 10 1SC | 5/8 | 15.9 | 22.3 | 20.3 | 1885 | 130 | 7540 | 520 | 150 |
| 12 1SC | 3/4 | 19 | 25.6 | 23.7 | 1525 | 105 | 6100 | 420 | 180 |
| 16 1SC | 1 | 25 | 33.2 | 31.1 | 1275 | 88 | 5100 | 352 | 230 |
| 20 1SC | 1-1/4 | 31.5 | 40.9 | 38.7 | 915 | 63 | 3660 | 252 | 315 |
| 24 1SC | 1-1/2 | 38 | 46.8 | 44.3 | 725 | 50 | 2900 | 200 | 375 |
| 32 1SC | 2 | 50 | 61 | 58 | 580 | 40 | 2320 | 160 | 475 |

# RHINOTUFF COVER COMPACT HOSE EN857 1SC

## 1-WIRE BRAID HYDRAULIC HOSE FLAME-RESISTANT 'MSHA' COVER


**Tube:**

Specially compounded oil-resistant NBR (Black)

**Reinforcement:**

One braid of high-tensile steel wire

**Cover:**

High-abrasion-resistant, oil and ozone-resistant synthetic rubber — MSHA certified.

**Temperature range:**

From -40°C to +100°C, continuous operation.

For air max temperature = +70°C

**Main applications:**

Medium-pressure hydraulic lines, fuel oil, antifreeze solutions, air and water. Conforms to EN 857 1SC specifications up to 1". Sizes 1-1/4" to 2" are manufactured to the manufacturer's proprietary specifications. Cover finish available from 1/4" to 3/4" ID in smooth or wrap finish. Sizes from 1" to 2" ID are available in wrap finish only.

| PRODUCT | HOSE ID | | NOM. HOSE OD | WIRE BRAID OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 1SC rhinotuff | 1/4 | 6.3 | 12.4 | 10.3 | 3265 | 225 | 13000 | 900 | 75 |
| 5 1SC rhinotuff | 5/16 | 8 | 13.9 | 11.7 | 3100 | 215 | 12400 | 860 | 85 |
| 6 1SC rhinotuff | 3/8 | 9.5 | 15.8 | 13.8 | 2610 | 180 | 10440 | 720 | 90 |
| 8 1SC rhinotuff | 1/2 | 12.5 | 19.1 | 17.1 | 2320 | 160 | 9280 | 640 | 130 |
| 10 1SC rhinotuff | 5/8 | 15.9 | 22.3 | 20.3 | 1885 | 130 | 7540 | 520 | 150 |
| 12 1SC rhinotuff | 3/4 | 19 | 25.6 | 23.7 | 1525 | 105 | 6100 | 420 | 180 |
| 16 1SC rhinotuff | 1 | 25 | 33.2 | 31.1 | 1275 | 88 | 5100 | 352 | 230 |
| 20 1SC rhinotuff | 1-1/4 | 31.5 | 40.9 | 38.7 | 915 | 63 | 3660 | 252 | 315 |
| 24 1SC rhinotuff | 1-1/2 | 38 | 46.8 | 44.3 | 725 | 50 | 2900 | 200 | 375 |
| 32 1SC rhinotuff | 2 | 50 | 61 | 58 | 580 | 40 | 2320 | 160 | 475 |

## SECTION - B

# SPIRAL HOSES

### 4SH SERIES


### 4SP SERIES


Note: R12, R14, R15 Hoses are under validation stage

# 4SH SERIES

## 1-WIRE BRAID HYDRAULIC HOSE
## FLAME-RESISTANT ‘MSHA’ COVER


**Construction:**

The hose consists of an inner tube of oil synthetic rubber, four or six layers of spiral wire reinforcement and an oil and weather resistance rubber cover.

**Temperature range:**

From -40°C to +100°C.

**Impulse Test:**

Specified – 4,00,000 Cycles

Tested up to – 8,00,000 Cycles

(Impulse test conducted with recommended fittings)

**Main applications:**

Suitable for conveying hydraulic fluids such as glycol, mineral oil, lubrication, emulsion, hydrocarbons etc.

Should not be used for conveying phosphate ester group.

| PRODUCT | HOSE ID | | | NOM. HOSE OD | | MAX. WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS | | APPROX. WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DASH | MM | INCH | MM | INCH | MPA | PSI | MPA | PSI | MM | INCH | KG/M |
| 3/4” 4SH | -12 | 19 | 3/4 | 32.1 | 1.26 | 42 | 6090 | 168 | 24360 | 280 | 11.02 | 1.63 |
| 1” 4SH | -16 | 25 | 1 | 38.4 | 1.51 | 38.5 | 5580 | 154 | 22330 | 340 | 13.38 | 2.12 |
| 1-1/4” 4SH | -20 | 32 | 1-1/4 | 45.4 | 1.79 | 32.5 | 4710 | 130 | 18850 | 460 | 18.11 | 2.77 |
| 1-1/2” 4SH | -24 | 38 | 1-1/2 | 53.4 | 2.1 | 29 | 4200 | 116 | 16820 | 560 | 22.05 | 3.6 |
| 2” 4SH | -32 | 51 | 2 | 68.2 | 2.68 | 25 | 3625 | 100 | 14500 | 700 | 27.56 | 4.9 |

# 4SH SERIES

## 1-WIRE BRAID HYDRAULIC HOSE
## FLAME-RESISTANT ‘MSHA’ COVER


**Construction:**

The hose consists of an inner tube of oil-synthetic rubber, four or six layers of spiral wire reinforcement and an oil & weather resistant rubber cover.

**Temperature range:**

From -40°C to +100°C.

**Impulse Test:**

Specified – 4,00,000 Cycles

Tested up to – 8,00,000 Cycles

(Impulse test conducted with recommended fittings)

**Main applications:**

Suitable for conveying hydraulic fluids such as glycol, mineral oil, lubrication, emulsion, hydrocarbons etc.

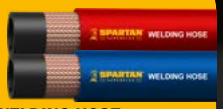
Should not be used for conveying phosphate ester group.

| PRODUCT | HOSE ID | | | NOM. HOSE OD | | MAX. WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS | | APPROX. WEIGHT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DASH | MM | INCH | MM | INCH | MPA | PSI | MPA | PSI | MM | INCH | KG/M |
| 1/2” 4SP | -8 | 13 | 1/2 | 24.8 | 0.97 | 42.5 | 6160 | 170 | 24650 | 230 | 9.1 | 0.9 |
| 5/8” 4SP | -10 | 16 | 5/8 | 27.9 | 1.1 | 35 | 5075 | 140 | 20300 | 250 | 9.84 | 1.06 |
| 3/4” 4SP | -12 | 19 | 3/4 | 32.0 | 1.26 | 35 | 5075 | 140 | 20300 | 300 | 11.81 | 1.61 |
| 1” 4SP | -16 | 25 | 1 | 39.7 | 1.56 | 28 | 4060 | 112 | 16240 | 340 | 13.38 | 2.07 |
| 1-1/4” 4SP | -20 | 32 | 1-1/4 | 51 | 2 | 21 | 3045 | 84 | 12180 | 460 | 18.11 | 3.1 |

# SECTION - C
# INDUSTRIAL HOSES


AIR WATER IS:444 TYPE 2


CARBON FREE HOSE




WELDING HOSE


PNEUMATIC TOOL HOSE IS:446 TYPE 2


ROCKDRILL HOSE IS:446 TYPE 3


HD AIRDRILL HOSE


MILD CHEMICAL HOSE


AGRICULTURE SPRAY HOSE


HI STEAM HOSE


CAR WASH HOSE


HARD WALL PETROL/DIESEL DISPENSING HOSE


HI TEMP AIR DRILL


COMPRESSOR HOSE FOR HOT AIR


FIRE EXTINGUISHER HOSE FOR CO2 APPLICATION

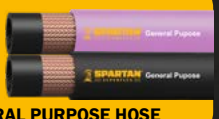

SAND BLAST HOSE


SUPREME SAND BLAST HOSE


CNG HOSE SAE J30 R6 AND IS:15722


HEATER HOSE


NITRO EXPLOSIVE HOSE




GENERAL PURPOSE HOSE


EXTREME HEAT HOSE

# AIR WATER HOSE IS:444 TYPE 2


**Tube:**

Synthetic rubber - Modified SBR (Black)

**Reinforcement:**

One or two braids of high-tenacity yarn.

**Cover:**

Weather and abrasion-resistant

NBR - PVC (Black)

**Temperature range:**

From -30°C to +70°C, continuous operation.

**Main applications:**

An economical air and water hose suitable for a wide range of industrial, workshop, construction, agricultural and irrigation applications. Meets or exceeds the performance requirements of IS:444 Type 2.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 8 AW | 1/2 | 12.5 | 20 | 175 | 12 | 525 | 36 | 125 |
| 12 AW | 3/4 | 20 | 28 | 175 | 12 | 525 | 36 | 150 |
| 16 AW | 1 | 25 | 35.9 | 175 | 12 | 525 | 36 | 200 |
| 20 AW | 1-1/4 | 31.5 | 42.9 | 175 | 12 | 525 | 36 | 250 |
| 24 AW | 1-1/2 | 38 | 49.6 | 175 | 12 | 525 | 36 | 300 |
| 28 AW | 1-3/4 | 45 | 57.5 | 175 | 12 | 525 | 36 | 300 |
| 32 AW | 2 | 50 | 62.3 | 175 | 12 | 525 | 36 | 425 |

# CARBON FREE HOSE

**Tube:**

Special non–carbon-compounded NBR (Off-White)

**Reinforcement:**

One or two braids of high-tenacity yarn.

**Cover:**

Weather and abrasion-resistant NBR/PVC (Green)

**Temperature range:**

From -40°C to +70°C, continuous operation.


**Main applications:**

In induction furnace cable cooling application for steel Industries and other non-conductive applications. The specially developed tube/cover/hose composite meets service requirement of low leakage current (<20 µA at 6000 V DC).

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 6 CF | 3/8 | 10 | 17.5 | 250 | 17.5 | 1015 | 70 | 75 |
| 8 CF | 1/2 | 12.5 | 21.5 | 250 | 17.5 | 1015 | 70 | 100 |
| 12 CF | 3/4 | 20 | 30.3 | 250 | 17.5 | 1015 | 70 | 150 |
| 16 CF | 1 | 25 | 36.6 | 250 | 17.5 | 1015 | 70 | 150 |
| 20 CF | 1-1/4 | 31.5 | 44.6 | 250 | 17.5 | 1015 | 70 | 195 |
| 24 CF | 1-1/2 | 38 | 52 | 250 | 17.5 | 1015 | 70 | 250 |
| 32 CF | 2 | 50 | 65.5 | 250 | 17.5 | 1015 | 70 | 300 |

# WELDING HOSE IS:447


**Tube:**

Synthetic rubber - Black

**Reinforcement:**

One braid of high-tenacity yarn.

**Cover:**

Synthetic rubber - Blue and Red

**Temperature range:**

From -30°C to +70°C, continuous operation.

**Main applications:**

A lightweight, economical hose for use in welding equipment carrying Oxygen and Acetylene gas. Red cover is for Acetylene or other fuel gases. Blue cover is for Oxygen or other non-combustible gases.

Meets or exceeds the performance requirements of IS:447.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 5 WELDING | 5/16 | 8 | 15 | 250 | 17.5 | 1000 | 70 | 95 |
| 6 WELDING | 3/8 | 10 | 17 | 250 | 17.5 | 1000 | 70 | 100 |

# PNEUMATIC TOOL HOSE IS:446 TYPE 2

**Tube:**

Synthetic rubber-Modified SBR-Black

**Reinforcement:**

One or two braids of high-tenacity yarn.

**Cover:**

Weather and abrasion resistant NBR/PVC (Black)

**Temperature range:**

From -30°C to +70°C, continuous operation.

**Main applications:**

These hoses are intended for use with all types of pneumatic tools for compressed air in various industries. Meets or exceeds the performance requirements of IS:446-Type 2.


| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 PT | 1/4 | 6.3 | 13.6 | 200 | 14 | 800 | 56 | 75 |
| 5 PT | 5/16 | 8 | 15.2 | 200 | 14 | 800 | 56 | 95 |
| 6 PT | 3/8 | 10 | 17 | 200 | 14 | 800 | 56 | 100 |
| 8 PT | 1/2 | 12.5 | 20.4 | 200 | 14 | 800 | 56 | 125 |
| 10 PT | 5/8 | 16 | 23.4 | 200 | 14 | 800 | 56 | 140 |
| 12 PT | 3/4 | 20 | 28.5 | 200 | 14 | 800 | 56 | 150 |
| 16 PT | 1 | 25 | 35.8 | 200 | 14 | 800 | 56 | 200 |
| 20 PT | 1-1/4 | 31.5 | 43.6 | 200 | 14 | 800 | 56 | 250 |
| 24 PT | 1-1/2 | 38 | 50 | 200 | 14 | 800 | 56 | 300 |
| 32 PT | 2 | 50 | 62.8 | 200 | 14 | 800 | 56 | 425 |

# ROCKDRILL HOSE IS:446 TYPE 3


**Tube:**

Synthetic rubber - Modified SBR (Black)

**Reinforcement:**

One or two braids of high-tenacity yarn.

**Cover:**

Weather and abrasion-resistant NBR/PVC (Black)

**Temperature range:**

From -30°C to +70°C, continuous operation.

**Main applications:**

Used for air supply in industrial construction and mining for air drills. Meets or exceeds the performance requirements of IS:446 Type 3.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 8 RD | 1/2 | 12.5 | 22 | 300 | 21 | 1200 | 84 | 125 |
| 12 RD | 3/4 | 20 | 28.3 | 300 | 21 | 1200 | 84 | 150 |
| 16 RD | 1 | 25 | 38 | 300 | 21 | 1200 | 84 | 200 |
| 20 RD | 1-1/4 | 31.5 | 43.5 | 300 | 21 | 1200 | 84 | 250 |
| 24 RD | 1-1/2 | 38 | 52 | 300 | 21 | 1200 | 84 | 300 |
| 32 RD | 2 | 50 | 65.5 | 300 | 21 | 1200 | 84 | 300 |

# ROCKDRILL HOSE IS:446 TYPE 3


**Tube:**

Synthetic rubber - Modified SBR (Black)

**Reinforcement:**

One braid of brass-coated high-tensile steel wire.

**Cover:**

Weather and abrasion-resistant NBR/PVC (Black)

All sizes come with perforated cover.

**Temperature range:**

From -30°C to +70°C, continuous operation.

**Main applications:**

Used for high-pressure air supply in industrial construction and mining. Meets or exceeds the performance requirements of IS:446 Type 3.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 8 HDAD | 1/2 | 12.5 | 22.6 | 575 | 40 | 2300 | 160 | 70 |
| 12 HDAD | 3/4 | 20 | 28.8 | 575 | 40 | 2300 | 160 | 100 |
| 16 HDAD | 1 | 25 | 37 | 575 | 40 | 2300 | 160 | 120 |
| 20 HDAD | 1-1/4 | 31.5 | 43.8 | 575 | 40 | 2300 | 160 | 175 |
| 24 HDAD | 1-1/2 | 38 | 50 | 575 | 40 | 2300 | 160 | 200 |
| 32 HDAD | 2 | 50 | 63.7 | 575 | 40 | 2300 | 160 | 300 |

# MILD CHEMICAL HOSE


**Tube:**

Synthetic rubber-modified EPDM (Black)

**Reinforcement:**

One or two braids of high-tenacity yarn.

**Cover:**

Weather and abrasion-resistant EPDM (Black)

**Temperature range:**

From -30°C to +100°C, continuous operation.

**Main applications:**

For conveying dilute chemicals such as hydraulic acid, sulphuric acid, alums liquor, caustic soda, methyl/ethyl/butyl alcohol, etc. Meets or exceeds the performance requirements of IS:7654 Type 1 and 2.

**Note:**

Contact Lister Fluid Power for any particular chemical use.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 8 CH | 1/2 | 12.5 | 22.5 | 145 | 10 | 580 | 40 | 125 |
| 12 CH | 3/4 | 20 | 30 | 145 | 10 | 580 | 40 | 150 |
| 16 CH | 1 | 25 | 37.2 | 145 | 10 | 580 | 40 | 200 |
| 20 CH | 1-1/4 | 31.5 | 44 | 145 | 10 | 580 | 40 | 250 |
| 24 CH | 1-1/2 | 38 | 51.8 | 145 | 10 | 580 | 40 | 300 |
| 32 CH | 2 | 50 | 64 | 145 | 10 | 580 | 40 | 300 |

# AGRICULTURE SPRAY HOSE


**Tube:**

Synthetic rubber-modified NBR (Black)

**Reinforcement:**

One or two braids of high-tenacity yarn.

**Cover:**

Oil and abrasion-resistant NBR (Black)

**Temperature range:**

From -30°C to +70°C, continuous operation.

**Main applications:**

A lightweight, economical high-pressure hose for carrying air, water and water-based pesticide spray solutions in agricultural applications. Meets or exceeds performance requirement of IS:1677 Type-C.

**Note:**

Not to be used for paint spray applications.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 6 AG SPRAY | 3/8 | 9.5 | 20.3 | 798 | 55 | 3192 | 220 | 100 |
| 8 AG SPRAY | 1/2 | 12.5 | 24 | 798 | 55 | 3192 | 220 | 125 |

# HI STEAM HOSE


**Tube:**

Extreme heat-resistant EPDM (Black)

**Reinforcement:**

One or two braids of brass-coated high-tensile steel wire.

**Cover:**

Extreme heat and weather-resistant EPDM (Black)

**Temperature range:**

From -40 °C to +205 °C, continuous operation.

**Main applications:**

For saturated and superheated steam up to 245 PSI and 205 °C. Used in refineries, shipyards, chemical plants, steel mills, foundries, heavy industrial applications, and tire-curing bagomatic presses. Meets or exceeds the performance requirements of IS 10655 Type 3 and BS 5342 Type 2.

**Note:**

Do not alternate between steam and hot water.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 8 STEAM | 1/2 | 12.5 | 23.4 | 245 | 17 | 2465 | 170 | 150 |
| 12 STEAM | 3/4 | 20 | 30.5 | 245 | 17 | 2465 | 170 | 200 |
| 16 STEAM | 1 | 25 | 36.8 | 245 | 17 | 2465 | 170 | 250 |
| 20 STEAM | 1-1/4 | 31.5 | 45.6 | 245 | 17 | 2465 | 170 | 300 |
| 24 STEAM | 1-1/2 | 38 | 53.4 | 245 | 17 | 2465 | 170 | 400 |
| 32 STEAM | 2 | 50 | 67 | 245 | 17 | 2465 | 170 | 625 |

# AGRICULTURE SPRAY HOSE


**Tube:**

Synthetic rubber-modified NBR (Black)

**Reinforcement:**

One or two braids of high-tensile yarn.

**Cover:**

Oil and abrasion-resistant NBR (Black)

**Temperature range:**

From -30°C to +70°C, continuous operation.

**Main applications:**

A lightweight, economical high-pressure hose for carrying air and water for car-washing and pressure-washing applications in garages, service stations, and industries. Meets or exceeds the performance requirements of IS 444 Type-3B.

**Note:**

Use wire-braided reinforcement for higher pressures.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 6 CW | 3/8 | 9.5 | 19.5 | 400 | 28 | 1160 | 80 | 100 |
| 8 CW | 1/2 | 12.5 | 22 | 400 | 28 | 1160 | 80 | 125 |
| 6 HDCW | 3/8 | 9.5 | 19 | 1100 | 75 | 2175 | 150 | 100 |

# HARD WALL PETROL/DIESEL DISPENSING HOSE


**Tube:**

Specially compounded fuel-resistant NBR (Black)

**Reinforcement:**

One braid of brass-coated high-tensile steel wire.

**Cover:**

Weather, oil and abrasion-resistant NBR/PVC (Black)

**Temperature range:**

From -30°C to +55°C, continuous operation.

**Main applications:**

For dispensing all types of petrol and diesel fuels at service-station pumps. Heavy-duty wire-braided construction prevents collapse during reel use or behind the nozzle in demanding service conditions. Meets or exceeds the performance requirements of EN 1360 Grade M, Type 3.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 12 PD | 3/4 | 19 | 28.2 | 250 | 17 | 750 | 51 | 100 |
| 16 PD | 1 | 25 | 34.7 | 250 | 17 | 750 | 51 | 150 |

# HI-TEMP AIR DRILL


**Tube:**

Oil-resistant synthetic rubber – modified NBR (Black)

**Reinforcement:**

One braid of brass-coated high-tensile steel wire.

**Cover:**

Weather and abrasion-resistant NBR/PVC (Black).

All sizes come with a perforated cover.

**Temperature range:**

From -30°C to +110°C, continuous operation.

**Main applications:**

Used for high-pressure air supply in industrial construction and mining applications. This hose is engineered to withstand higher operating temperatures, making it suitable for the water-well rig segment.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 20 HTAD | 1-1/4 | 31.5 | 44 | 500 | 35 | 2000 | 140 | 200 |
| 24 HTAD | 1-1/2 | 38 | 49.5 | 500 | 35 | 2000 | 140 | 250 |
| 32 HTAD | 2 | 50 | 63.5 | 500 | 35 | 2000 | 140 | 350 |

# COMPRESSOR HOSE FOR HOT AIR

**Tube:**

Oil-resistant synthetic rubber – CPE (Black)

**Reinforcement:**

Two braids of brass-coated high-tensile steel wire.

**Cover:**

Heat, weather and abrasion-resistant synthetic rubber (Black). All sizes come with a perforated cover.


**Main applications:**

Used for high-pressure and high-temperature air supply in heavy-duty compressors for ground drilling in construction, mining and general industry. The compounds are designed to withstand air temperatures up to 135 °C in heavy-duty drill-rig compressors with capacities up to 1100 CFM.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 24 | 1-1/2 | 38 | 53 | 1250 | 86 | 5220 | 344 | 500 |
| 32 | 2 | 50 | 66 | 1160 | 80 | 4640 | 320 | 600 |

# FIRE EXTINGUISHER HOSE

## FOR CO2 APPLICATION – 1 WIRE BRAID


**Tube:**

Specially compounded synthetic rubber (Black)

**Reinforcement:**

One braid of high-tensile steel wire.

**Cover:**

Weather and abrasion-resistant EPDM (Black).

Also available in NBR Tube and NBR Cover

**Temperature range:**

From -40°C to +100°C, continuous operation.

**Main applications:**

Use in CO2-based fire extinguisher application. Safety factor 1:2.5

**Caution:**

Do not use this hose in hydraulic or tractor trolley applications.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 6 CO2 | 3/8 | 9.5 | 17.2 | 2450 | 170 | 7350 | 510 | 125 |

# SAND BLAST HOSE


**Tube:**

Highly abrasion-resistant synthetic rubber (Black).

**Reinforcement:**

One or two braids of high-tensile synthetic yarn, with two copper wires laid in opposite directions.

**Cover:**

Abrasion-resistant NR–SBR (Black)

**Temperature range:**

From -30°C to +70°C, continuous operation.

**Main applications:**

For conveying abrasive materials such as sand, shot-blasting media, mineral ores and other highly abrasive substances. The hose is designed with an extra-thick 5 mm tube to ensure extended service life in demanding applications. Two flexible copper wires woven in opposite directions provide effective static-charge dissipation. Meets or exceeds the performance requirements of IS 5894.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 12 SB | 3/4 | 20 | 38.5 | 145 | 10 | 435 | 30 | 200 |
| 16 SB | 1 | 25 | 45.2 | 145 | 10 | 435 | 30 | 300 |
| 20 SB | 1-1/4 | 31.5 | 52.6 | 145 | 10 | 435 | 30 | 400 |
| 24 SB | 1-1/2 | 38 | 59 | 145 | 10 | 435 | 30 | 450 |
| 32 SB | 2 | 50 | 72.5 | 145 | 10 | 435 | 30 | 500 |

# SUPREME SAND BLAST HOSE


**Tube:**

Highly abrasion-resistant and conducting synthetic rubber (Black).

**Reinforcement:**

One or two braids of high-tenacity synthetic yarn

**Cover:**

Abrasion-resistant NR–SBR (Black)

**Temperature range:**

From -30°C to +70°C, continuous operation.

**Main applications:**

These are compact hoses designed for conveying abrasive materials such as sand, shot-blasting media, mineral ores, and similar abrasive substances where a working pressure of 14 bar is required. The tube is electrically conductive, eliminating the need for a copper bonding wire. The hose also features a tighter bend radius than standard sandblast hose, providing greater flexibility while maintaining durability.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 12 SSB | 3/4 | 20 | 33.3 | 200 | 14 | 800 | 56 | 175 |
| 16 SSB | 1 | 25 | 39.6 | 200 | 14 | 800 | 56 | 225 |
| 20 SSB | 1-1/4 | 31.5 | 48.5 | 200 | 14 | 800 | 56 | 250 |
| 24 SSB | 1-1/2 | 38 | 55.8 | 200 | 14 | 800 | 56 | 300 |
| 32 SSB | 2 | 50 | 67.5 | 200 | 14 | 800 | 56 | 400 |

# CNG HOSE SAE J30 R6 & IS:15722


**Tube:**

Specially compounded oil-resistant NBR (Black).

**Reinforcement:**

One braid of high-tenacity yarn

**Cover:**

Oil and ozone-resistant NBR/PVC (Black)

**Temperature range:**

From -40°C to +100°C, continuous operation

**Main applications:**

These hoses are intended for use on motor vehicles, two-wheelers and construction equipment (CEV) as flexible, low-pressure CNG fuel-system components with a service pressure not exceeding 21.5 bar.

**Caution:**

This is not to be used in Liquefied Natural Gas (LNG) fuel-system components located upstream of and in a vaporiser, fuel containers, stationary gas engines, or CNG fuel systems for marine-craft propulsion. Conforms to SAE J30 R6 and IS 15722 specifications.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 4 CNG | 1/4 | 6.3 | 12.8 | 305 | 21 | 1220 | 84 | 75 |
| 5 CNG | 5/16 | 8 | 14 | 305 | 21 | 1220 | 84 | 90 |
| 6 CNG | 3/8 | 10 | 15.7 | 305 | 21 | 1220 | 84 | 100 |
| 8 CNG | 1/2 | 12.5 | 19.8 | 305 | 21 | 1220 | 84 | 125 |
| 10 CNG | 5/8 | 16 | 23.8 | 305 | 21 | 1220 | 84 | 150 |
| 12 CNG | 3/4 | 20 | 28.5 | 305 | 21 | 1220 | 84 | 150 |
| 16 CNG | 1 | 25 | 34.5 | 305 | 21 | 1220 | 84 | 200 |

# HEATER HOSE


**Tube:**

Specially compounded oil-resistant NBR (Black).

**Reinforcement:**

One braid of high-tenacity yarn

**Cover:**

Oil and ozone-resistant NBR/PVC (Black)

(CR cover available on request)

**Temperature range:**

From -40°C to 100°C, continuous operation.

For air max temperature = +70°C

**Main applications:**

For transferring hot coolant or water, particularly in engine-cooling systems and heater systems. Conforms to SAE J20 specifications.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 8 HH | 1/2 | 12.5 | 20.5 | 60 | 4.1 | 249 | 17.2 | 125 |
| 10 HH | 5/8 | 16.0 | 23.8 | 60 | 4.1 | 249 | 17.2 | 150 |
| 12 HH | 3/4 | 20.0 | 27.0 | 60 | 4.1 | 249 | 17.2 | 150 |

# NITRO EXPLOSIVE HOSE


**Tube:**

Oil and abrasion-resistant synthetic rubber NBR/SBR (Black).

**Reinforcement:**

One layer of high-tensile steel wire braid.

**Cover:**

MSHA approved synthetic black rubber with high abrasion, ozone and weather resistance.

**Temperature range:**

From -40 °C to 100 °C

**Main applications:**

Emulsion dispensing hose applications take place at the blasting site in a drilled pit from a mobile delivery unit. Available in 1½" wrap finish.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 24 HIGH POWER EXPLOSIVE | 1-1/2 | 38 | 50.7 | 580 | 40 | 2320 | 160 | 500 |

# GENERAL PURPOSE HOSE


**Tube:**

Specially compounded synthetic rubber – EPDM (Black).

**Reinforcement:**

One braid of high-tenacity yarn.

**Cover:**

Weather and abrasion-resistant EPDM

**Temperature range:**

From -40°C to 100°C

**Main applications:**

Suitable for high-flexing conditions and a wide range of fluid-handling applications. Available in ½″ and ¾″ sizes with Black or Red cover options, in either wrap or smooth finish.

**Note:**

Sizes are available as per customer requirement.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 8 GPH | 1/2 | 12.5 | 20.9 | 200 | 14 | 800 | 56 | 125 |
| 12 GPH | 3/4 | 19 | 28.5 | 200 | 14 | 800 | 56 | 150 |

# EXTREME HEAT HOSE


**Tube:**

Long-life oil-resistant tube.

**Reinforcement:**

High-tensile steel wire braid.

**Cover:**

Abrasion-resistant, pin-pricked outer cover.

**Temperature range:**

From -40°C to 135°C

**Main applications:**

Air compressor delivery lines for pressurised oil, specially designed for water well drilling rigs and supporting equipment. Available in 1½" and 2" sizes, with wrap finish.

| PRODUCT | HOSE ID | | NOM. HOSE OD | MAX WORKING PRESSURE | | MIN BURST PRESSURE | | MIN BEND RADIUS |
|---|---|---|---|---|---|---|---|---|
| | INCH | MM | MM | PSI | BAR | PSI | BAR | MM |
| 24 | 1-1/2 | 38 | 54.6 | 1250 | 86 | 5220 | 360 | 500 |
| 32 | 2 | 50 | 65.8 | 1160 | 80 | 4640 | 320 | 630 |

SECTION - D

# END FITTINGS

# END FITTINGS

| FITTING TYPE | BEND ANGLE | HOSE DASH SIZE | THREAD RANGE | FERRULE RANGE |
|---|---|---|---|---|
| ORFS | 90° | -4 TO -32 | ¼"–2" | ¼"–2" |
| BSP | 90° | -4 TO -32 | ¼"–2" | ¼"–2" |
| JIC | 90° | -4 TO -32 | 7/16 – 20 – 2 1/2 –12 | ¼"–2" |
| METRIC (L) | 90° | -4 TO -48 | M12 x 1.5 – M52 x 2.0 | ¼"–2" |
| METRIC (H) | 90° | -6 TO -48 | M16 x 1.5 – M52 x 2.0 | ¼"–2" |
| CODE-61<br>O RING FLANGE | 90° | -6 TO -20 | 3/8"–1-1/4" | 3/8"–1-1/4" |
| CODE-62<br>O RING FLANGE | 90° | -6 TO -20 | 3/8"–1-1/4" | 3/8"–1-1/4" |

# END FITTINGS

| FITTING TYPE | BEND ANGLE | HOSE DASH SIZE | THREAD RANGE | FERRULE RANGE |
|---|---|---|---|---|
| ORFS | 45° | -4 TO -32 | ¼"–2" | ¼"–2" |
| BSP | 45° | -4 TO -32 | ¼"–2" | ¼"–2" |
| JIC | 45° | -4 TO -32 | 7/16 – 20 – 2 1/2 –12 | ¼"–2" |
| METRIC (L) | 45° | -4 TO -48 | M12 x 1.5 – M52 x 2.0 | ¼"–2" |
| METRIC (H) | 45° | -6 TO -48 | M16 x 1.5 – M52 x 2.0 | ¼"–2" |
| CODE-61<br>O RING FLANGE | 45° | -6 TO -20 | 3/8"–1-1/4" | 3/8"–1-1/4" |
| CODE-62<br>O RING FLANGE | 45° | -6 TO -20 | 3/8"–1-1/4" | 3/8"–1-1/4" |

# END FITTINGS

| FITTING TYPE | BEND ANGLE | HOSE DASH SIZE | THREAD RANGE | FERRULE RANGE |
|---|---|---|---|---|
| ORFS | ST | -4 TO -32 | ¼"–2" | ¼"–2" |
| BSP | ST | -4 TO -32 | ¼"–2" | ¼"–2" |
| JIC | ST | -4 TO -32 | 7/16 – 20 – 2 1/2 –12 | ¼"–2" |
| METRIC (L) | ST | -4 TO -48 | M12 x 1.5 – M52 x 2.0 | ¼"–2" |
| METRIC (H) | ST | -6 TO -48 | M16 x 1.5 – M52 x 2.0 | ¼"–2" |
| CODE-61<br>O RING FLANGE | ST | -6 TO -20 | OD 30.2MM-OD 50.8MM | 3/8"–1-1/4" |
| CODE-62<br>O RING FLANGE | ST | -8 TO -24 | 3/8"–1-1/4" | 3/8"–1-1/4" |

# END FITTINGS

| FITTING TYPE | BEND ANGLE | HOSE DASH SIZE | THREAD RANGE | FERRULE RANGE |
|---|---|---|---|---|
| Male ORFS | ST | -4 TO -32 | ¼"–2" | ¼"–2" |
| Male BSP | ST | -4 TO -32 | ¼"–2" | ¼"–2" |
| Male JIC | ST | -4 TO -32 | 7/16 – 20 – 2 1/2 –12 | ¼"–2" |
| METRIC (L) | ST | -4 TO -48 | M12 x 1.5 – M52 x 2.0 | ¼"–2" |
| METRIC (H) | ST | -6 TO -48 | M16 x 1.5 – M52 x 2.0 | ¼"–2" |
| Male NPT | ST | -2 TO -32 | 1/8" - 2" | 1/8" - 2" |

## NOMOGRAM

### Determination of Nominal Diameter

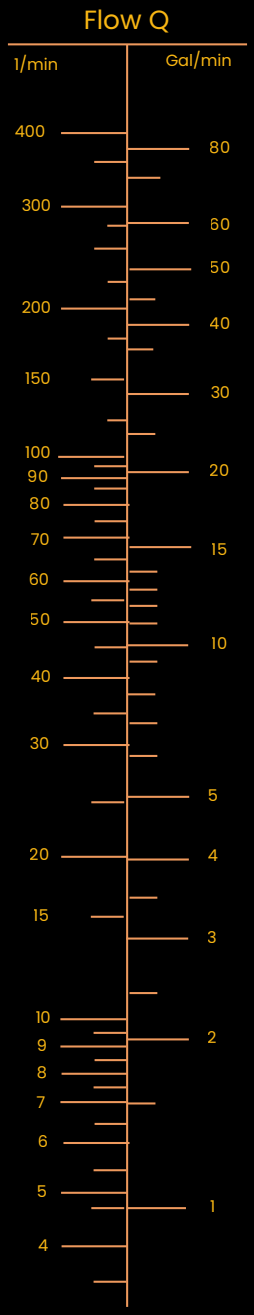
The nomogram can be used as an aid to select the nominal diameters of hose and pipe assemblies.

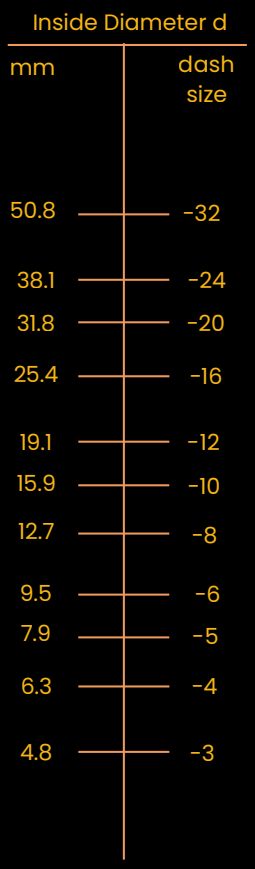
**Example:**

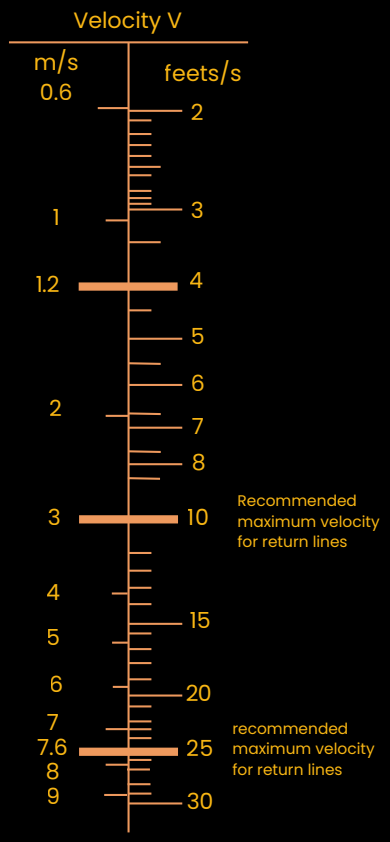
Rate of flow Q = 50 L/min (left-hand scale), chosen speed V = approx. 4m/sec. (Right-hand scale). The point of intersection on the middle scale gives a nominal diameter of 19.1mm. Other parameters of the installation, such as length of hose assemblies, number of valves, viscosity of the oil and maximum permissible pressure loss, must be taken into account when determining final nominal diameters. The nominal diameter can also be determined using the formula:-

$$DN = \frac{Q \times 400}{\sqrt{V \times 3.14 \times 16}}$$

Where Q and V must be inserted as above. The values of the nomogram are based on hydraulic oils with maximum viscosity of S.S.U. (9°E) at +38°C (+100°F) at an operation temperature of between +18° (+65°F) and +68° (+155°F).



## TROUBLESHOOTING

### Typical Hose Failure Modes

| Failure Mode | Possible Causes |
|---|---|
| **Improper application** | • Overload - pressure<br>• Overload - mechanical<br>• Deterioration of hose material<br>• Twisting damage<br>• Too sharp bends |
| **Outer Sheath Wear** | • Too sharp bends<br>• Inadequate abrasion protection<br>• Incorrect material selection |
| **Improper Assembly & Installation** | • Overload - pressure<br>• Overload - mechanical<br>• Incorrect material selection<br>• General wear and age maturity<br>• Fatigue and cyclic loading |
| **Fitting Corrosion** | • Inadequate corrosion protection<br>• Incorrect material selection |
| **Reinforcement Wire Corrosion** | • Inadequate corrosion protection<br>• Incorrect material selection |
| **Hose / Fitting Separation** | • Compression set of hose material<br>• Loss of compression pressure on hose<br>• Overload - pressure<br>• Overload - mechanical<br>• Mismatched components<br>• Poor assembly practices |
| **Outer Layers of the Hose Got Damaged** | • Abrasion damage of hose due to foreign material<br>• Hoses rubbing with each other<br>• Inadequate hose cover material |
| **Outer Layers of the Hose Got Damaged** | • Excessive vacuum conditions<br>• Hose working under excessive & prolonged vacuum conditions<br>• Material degradation |
| **Outer Layers of the Hose Got Damaged** | • Incorrectly selected hose causing too high velocity (refer nomograph)<br>• Cyclic/random bending of hose<br>• Cyclic/random pressure changes |
| **Hose Deterioration** | • Fluid/material compatibility<br>• Ultraviolet radiation<br>• Temperature<br>• Ozone<br>• Environmental surrounding hose<br>• Solvents |

## HOSE IN-SERVICE INSPECTION CHECK LIST

### For the hose in-service checks, one should look for

- ✓ Visual evidence of leaks along the hose or around the hose ends.
- ✓ Degraded hose, hard, stiff, charred, blistered, soft, heat cracked hose.
- ✓ Exposed, damaged, corroded or broken outer braid wires.
- ✓ Wear & abrasion.
- ✓ Bulges, blistered, soft, degraded or loose outer covers.
- ✓ Outer cover sheath damage, cuts in the hose cover or cracked and heat affected.
- ✓ Kinked, crushed, flattened or twisted hose.
- ✓ Wrong bend radius.
- ✓ Incorrect hose routing.
- ✓ Incorrect length of the hose.
- ✓ Permanent or physical damage to the hose.
- ✓ Hoses too close to heat emitting sources.
- ✓ Hoses tangled with moving parts.
- ✓ Cracked, damaged, or badly corroded hose ends or adaptors.
- ✓ Unsecured or loose hoses & fittings.
- ✓ Damaged fitting threads.
- ✓ Inspection of staples (broken, twisting, cracked or “walking out”).
- ✓ Any other sign of deterioration.
- ✓ Hose exceeding shelf life before installation.
- ✓ Hose exceeding its designed service life.
- ✓ Visual evidence of hose and end fitting.

# TECHNICAL

## HOSE MAINTENANCE AND STORAGE

### Maintenance:

- It is advised to carry visual inspection and hydrostatic test at periodic intervals to check whether the hose is suitable for continued service or not.
- A visual inspection of the hose should be done for damaged covers, kinks, bulges or soft spots, which might indicate failures in the structure.
- The periodic inspection should include a hydrostatic test for one minute at 150% of the recommended hose working pressure.
- During the test, the hose must be laid straight, it should not be in a coiled or in kinked position. Water is the usual test medium and after the test, hose can be flushed with alcohol to remove the traces of moisture. A regular schedule for testing should be followed and inspection records should be maintained.
- Never use air or compressed gas to test the hose as the hose may explode. Such failure might result in serious body injury or damage the equipment or property around.
- Air should be removed from the hose by bleeding it through an outer valve while the hose is being filled.
- Hose to be tested must be restrained by placing proper steel containers to minimise the impact of "whipping" if a failure occurs. The hose must be free for easy movement during test.
- The hose outlet must be cupped to prevent any fitting blow-out.
- Sufficient care should be taken to protect the person engaged in testing. He should never stand in front or at the back of the ends of the hose which is being tested.
- When gasoline, oil, solvent or any other hazardous fluids are used as a test fluid, precautions must be taken to prevent fire or physical damage in case the hose fails. The test fluid is likely to spread and catch fire.

### Storage:

- Rubber products if stored for a prolonged period are likely to be adversely affected by excessive temperature, humidity, ozone, sunlight, oils, solvents, corrosive liquids, smoke, insects, rodents and radioactive materials. The appropriate method for storing hose, depends largely on its size, the quantity to be stored, and the way in which it is packed.
- Hose should not be piled or stacked too high. The weight of the piled hoses can cause serious damage to the hoses kept at the bottom.
- Hose with thin walls will not support as much as a hose having a heavy wire reinforcement. Hose which is shipped in coils should be stored in order that coils are in a horizontal plane.
- If possible, rubber hose products should be stored in their original shipping containers, especially when such containers are wooden spools or cardboard cartons which provide some protection against action of oils, solvents and corrosive liquids; and also renders them for some protection against ozone and sunlight also.
- The ideal temperature for the storage of rubber products ranges from 10-20°C (50-70°F), with a maximum limit of 40°C (105°F).
- If stored below 0°C (32°F), some rubber products become stiff and would require warming before being placed in service.
- Rubber products should not be stored near the sources of heat, such as radiators, heaters, etc., nor should they be stored under conditions of high humidity, or high ozone or near electric motors.

# SAFETY

## SAFETY CONSIDERATION

### Following are some potential conditions that can lead to personal injury and cause damage to the property.

- As certain fluids may permeate the hose cover, the area where hose is used should be adequately ventilated.
- Hydraulic systems generally operate at very high pressure. Any leak of pressurised fluid can prostrate the human skin, causing severe tissue damage and burns. Consider the use of guards or shields around the hose assembly to reduce the risk of any injury.
- Hydraulic fluids are flammable and can explode with a source of ignition. To avoid possible injury or property damage, care should be taken to eliminate ignition sources and to properly route the hose assembly to minimize the chance of any combustion.
- Hoses are conductive in nature. In some cases, a non-conductive hose is required. To avoid electrocution or other serious mishap, the hose with correct specifications, either conductive or non-conductive, should be used.
- In case hose assembly fails, loss of hydraulic pressure will affect the operation of the equipment. Care should be taken that a sudden power loss of the equipment will not cause any personal injury.
- When air or gaseous materials are being conveyed, it is necessary to use a pin-pricked-cover hose. The pricking of the cover will prevent permeated gases from blistering and accumulating on the surface of the hose.
- Extreme care should be taken while operating handheld hydraulic tools where the operator is in the proximity of hydraulic hose assembly.

### Following precautions should be taken to avoid any injury.

- Use strain relievers on each end of the hose to prevent kinking, excessive bending, or stress on the hose at the couplings.
- Never use the hose assembly to pull or carry the tool.
- Exposed hose near the operator should be guarded so that he remains safe from high pressure or high temperature fluids, in case the hose assembly fails.
- Operator of the tool should be protected with the required safety clothing considering the job and fluid being used.
- The hose should be protected against any external damage.
- Hose assemblies should be properly routed to avoid strain and the possibility of hose bursting. Proper routing will also protect the assembly against flex fatigue, excessive heat & abrasion.

# SAFETY

## FOR YOUR SAFETY

It is required that machinery is designed, manufactured and maintained in accordance with international directives such as 2006 42/EC that ensures components of the machinery are suitable for use.

**WARNING: Never underestimate the risks of hydraulic hose failure.**

There are seven recognised risk factors associated with hydraulic power- Fluid Injection, Pressure, Fire, Electrical, Environmental, Temperature and Mechanical. To avoid injury to yourself and others please adhere to (BS / EN) ISO 4413-2010 when specifying, producing, fitting and using hydraulic hose assemblies.

*Serious injury, damage to equipment, or fatal accidents can occur from rupture or blowout of a hydraulic hose that is*

✅ Worn or damaged ✅ Incorrectly installed or assembled ✅ Not suited for the application

## SAFETY GUIDELINES

**Get trained with Lister Fluid Power experts.**

Lister Fluid Power offers a range of training opportunities for those designing, assembling, fitting or using hydraulic hose assemblies which provide information on international legislation, the correct choice of components for each application, the production of correct hose assemblies and their safe fitting to machinery.

**Use only certified hose and matched end fittings.**

Never mix and match different brands. ISO 4413-2010 – “Hoses and hose assemblies shall comply with minimum performance requirements and will have been validated to international standards via testing”.

**Hydraulic Hose Replacement.**

ISO 4413-2010 “Hose Assemblies shall NOT be constructed from hoses which have been previously used as part of a hose assembly, Repair (re-joining) hose assemblies is strictly forbidden”.

**If you suspect a leak in the hydraulic system.**

Turn off the machine and isolate power, wait for the system to cool down, look for pools of oil – don’t feel for them! If you suspect that you have received a fluid injection injury seek urgent medical attention.

# SELECT AND INSTALL HOSE ASSEMBLIES WITH CARE

## DOs ✅

- **Choose the correct hose** for the application, ensuring it can withstand the internal and external stresses (ISO 4413/2010 9.5.1).
- **Ensure correct hose routing** to minimise risks such as hose whipping, oil projection, twisting, sharp bends, pulling, heat exposure, abrasion, or aggressive environments (ISO 4413/2010 9.5.2).
- **Follow manufacturer crimp data** and written instructions when assembling hoses (ISO 4413/2010 & ISO 413/2010).
- **Replace hoses** showing signs of wear, bulges, leaks, or damage.
- **Respect storage and service time limits** recommended by the hose manufacturer (ISO 4413/2010 9.5.1).
- **Ensure pressure ratings** of hoses and connectors meet or exceed the system's requirements.
- **Use replacement parts** that are equal to or better than the original in terms of pressure, temperature, and fluid compatibility (ISO 4413/2010 9.5.1 / 8.1.2.1)
- **Conduct risk assessments** to identify hazards, determine who might be harmed, evaluate risks, and decide on precautions.

## DONTs ❌

- **Don't use hoses** that are not designed or constructed for the expected stresses.
- **Don't route hoses** in ways that cause excessive twisting, sharp bends, pulling, or expose them to heat, abrasion, or aggressive environments.
- **Don't ignore manufacturer assembly instructions** or use incorrect crimp data.
- **Don't re-crimp** hoses that have been previously used (ISO 4413/2010 9.5.1).
- **Don't reuse** damaged hoses or hose assemblies.
- **Don't use hoses or connectors** with a lower pressure rating than the system.
- **Don't replace parts** with lower quality or incompatible components.
- **Don't neglect** regular inspection and risk assessment.

## FOLLOW GOOD MAINTENANCE PRACTICES

**Establish an inspection schedule.**

**Check assemblies before each use.**

**Replace hoses showing signs of damage or degradation.**

**Keep records of service intervals and replacement dates.**

## AVOID INJECTION INJURIES

- A small pinhole leak under pressure can inject fluid into the body.
- Do not use hands to check for leaks.
- Use a cardboard or a wood sheet instead.
- If injured, seek emergency care immediately. Delay can lead to severe complications or amputation.

## OTHER SAFETY INFORMATION

- Lister Fluid Power recommends referring to ISO 4413 and SAE J1273 for guidelines on hydraulic hose use.
- Always use genuine Spartan Superflex hoses and fittings to ensure compatibility and performance.

For crimping data and support, **Contact the Lister Fluid Power's technical team**

*Lister Fluid Power shall not be liable for injuries, equipment damage, or losses due to the misuse, unauthorised reassembly, or improper application of hose assemblies. Always follow product-specific installation and handling instructions.*

## SAE Recommended Practices for Hydraulic Hose and Hose Assemblies

The SAE J1273 guidelines recommend practices while selecting, routing, fabricating, installing, replacing, maintaining and storing hoses for Fluid Power Systems. SAE J1273 standard recommends following good practices which can increase life of the hose assembly.

**These recommended practices take into account safety of human and systems, maximising life of hose and its assemblies.**

- Select proper hose for the application. Simply matching ID/OD is not enough but it should be along with type of hose.
- Hydraulic components selection should also be based on application temperature, pressure and bend radius.
- Don’t exceed recommended component limits.
- Hose must not be stretched, kinked, crushed or twisted while installing or during its use.
- Hose must not be bent to less than its recommended minimum bend radius.

# HOSE INSTALLATION & MAINTENANCE

## Assembly Orientation & Length Notification: Correct Assembly Length


0° Fitting Orientation

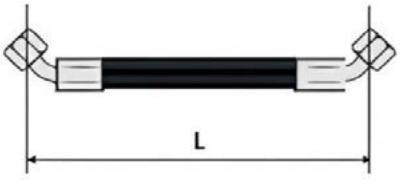

180° Fitting Orientation


270° Fitting Orientation

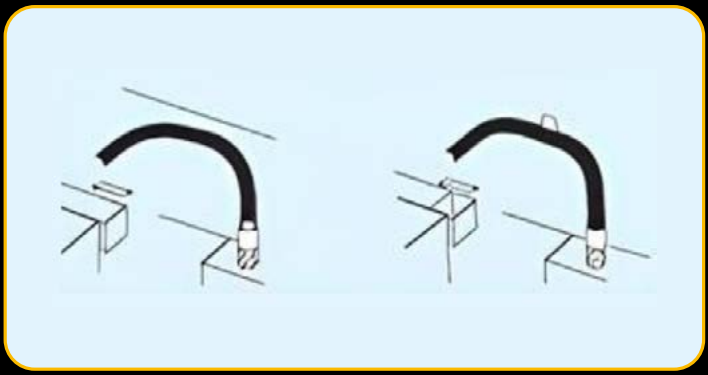

90° Fitting Orientation



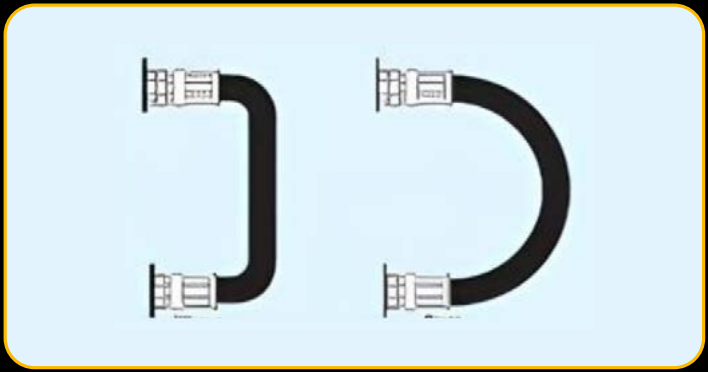


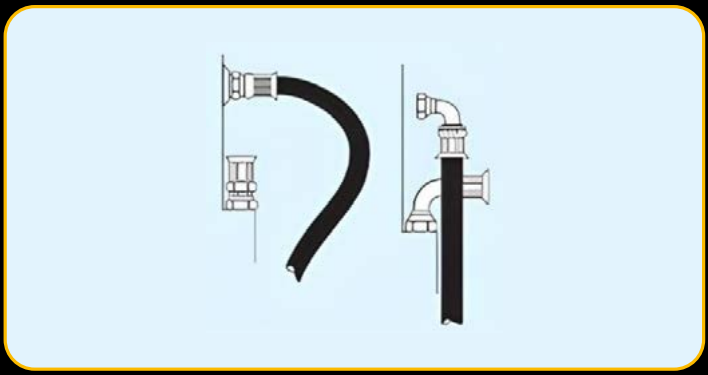
# HOSE INSTALLATION & MAINTENANCE



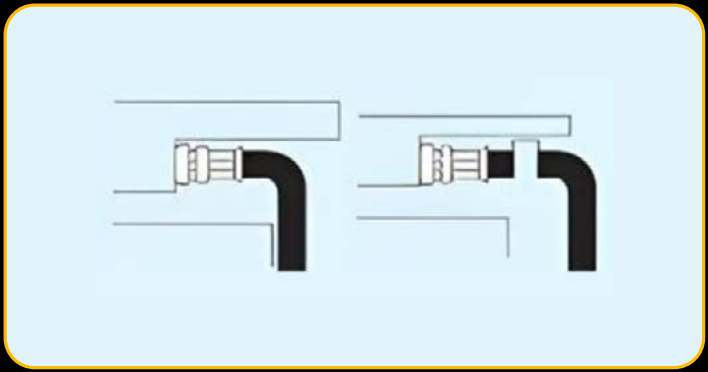
Avoid the twisting of hose lines, bend in two planes by clamping hose at the change of the plane.



To avoid hose-collapse and flow restrictions, keep the hose bend radius as large as possible.



Elbows and adaptors should be used to relieve strain on the assembly and to provide neater installations in order to facilitate inspection and maintenance at an ease.



Run the hose so as to avoid rubbing and abrasion. Often clamps are required to support longer hose runs or to keep hose away from moving objects. Use clamps of the correct size. Too large clamps allow hose to move inside the clamp causing abrasion.

# STAMPED

## S Size Of Hose

Define hose dimensions (ID, OD, length) and flow requirements for proper performance.

## T Temperature

Consider both internal fluid and ambient temperatures affecting hose materials.

## A Application

Identify how the hose will be used, including conditions, movement, and safety requirements.

## M Material Conveyed

Ensure the hose is compatible with the substance being transferred and external exposure.

## P Pressure

Ensure the hose is compatible with the substance being transferred and external exposure.

## E End Requirements

Specify the correct fittings, connections, and coupling types needed.

## D Delivery

Confirm the hose meets system flow demands and is suitable for required volume and speed.

# HOW LONG WILL A HOSE ASSEMBLY LAST?

**CAUTION**
**It depends on how it's used. This catalogue and other Spartan Superflex literature show the recommended limits for our assemblies (and also the hoses and couplings used to make these assemblies). These limits include installation, maintenance, and conditions of use. These limits MUST be followed or the assembly can fail resulting in personal injury or property damage.**

Hose assemblies in use should be inspected regularly for leaks, kinks, cover blisters, gouges, abrasion and other damage. Damaged or worn assemblies must be replaced immediately.

You can increase assembly life if you do the following:

## HOSE ASSEMBLY INSTALLATION

Hydraulic hose assembly installations should comply with hydraulic hose routing and plumbing standards per SAE J1273 for the proper application of hose assemblies.

## PRESSURE

The hydraulic system pressure should not exceed the rated working pressure of the hose. Pressure surges or peaks exceeding the rated working pressure are destructive and must be taken into account when selecting a hose.

## BURST PRESSURE

Burst pressure is the maximum internal pressure a hydraulic rubber hose can withstand before it ruptures. It is usually a multiple of the rated working (maximum operating) pressure.
Burst Pressure = 4 x WP

## TEMPERATURE RANGE

Do not expose the hose to internal or external temperatures that exceed the recommended limits. Consult additional technical data when hydraulic fluids contain emulsions or solutions. The fluid manufacturer's maximum recommended operating temperature must never be exceeded, regardless of the hose's temperature rating.

## FLUID COMPATIBILITY

The hydraulic assembly (tube, cover, reinforcement and couplings) must be fluid compatible. The correct hose must be used because phosphate ester and petroleum-based hydraulic fluids have drastically different chemical characteristics. Many hoses are compatible with one or the other, but not all fluids.

# HOW LONG WILL A HOSE ASSEMBLY LAST?

## MINIMUM BEND RADIUS

Do not bend or flex the hose to a radius smaller than the minimum recommended, and do not subject the hose to tension or torque. Doing so can place excessive stress on the reinforcement and significantly reduce the hose's ability to withstand pressure.

## HOSE SIZE

The hose size (internal diameter) must be capable of handling the required flow volume. An internal diameter that is too small for the flow rate will cause excessive fluid velocity, which increases pressure loss and generates heat. This can lead to premature tube damage.

## HOSE ROUTING

Restrain, protect, or guide the hose (using clamps if necessary) to reduce the risk of damage from excessive flexing, whipping, contact with moving parts, corrosive materials, or abrasive surfaces. Select hose lengths and routing configurations that minimise abrasion, snagging, or kinking, and ensure secure, leak-resistant connections.

## HOSE LENGTH

Correct hose length should include considerations for length changes under pressure, machine vibration and motion and hose assembly routing.

## HOSE APPLICATIONS

Select a hose that is properly rated and designed for the specific application.

**CAUTION**

**Storage environment and rubber materials can influence shelf life. Shelf life is difficult to quantify as many variables affect the hose. Proper storage can extend shelf life to a minimum of three to five years. Beyond this time there can be significant service life decrease, depending on variables like storage environment.**

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# PRESSURE CONVERSION CHART

## METRIC TO PSI (1KPA = .145 PSI)

| Kilo Pascals (kPa) | Mega Pascals (MPa) | Bar | Pounds per square inch (psi) |
|---|---|---|---|
| 100 | 0.1 | 1 | 14.5 |
| 200 | 0.2 | 2 | 29 |
| 300 | 0.3 | 3 | 43.5 |
| 400 | 0.4 | 4 | 58 |
| 500 | 0.5 | 5 | 72.5 |
| 600 | 0.6 | 6 | 87 |
| 700 | 0.7 | 7 | 101.5 |
| 800 | 0.8 | 8 | 116 |
| 900 | 0.9 | 9 | 130.5 |
| 1000 | 1 | 10 | 145 |
| 2000 | 2 | 20 | 290 |
| 3000 | 3 | 30 | 435.1 |
| 4000 | 4 | 40 | 580.2 |
| 5000 | 5 | 50 | 725.2 |
| 6000 | 6 | 60 | 870.2 |
| 7000 | 7 | 70 | 1015 |
| 8000 | 8 | 80 | 1160 |
| 9000 | 9 | 90 | 1305 |
| 10000 | 10 | 100 | 1450 |
| 20000 | 20 | 200 | 2900 |
| 30000 | 30 | 300 | 4351 |
| 40000 | 40 | 400 | 5801 |
| 50000 | 50 | 500 | 7251 |
| 60000 | 60 | 600 | 8702 |
| 70000 | 70 | 700 | 10152 |
| 80000 | 80 | 800 | 11603 |
| 90000 | 90 | 900 | 13053 |
| 100000 | 100 | 1000 | 14504 |
| 200000 | 200 | 2000 | 29008 |
| 300000 | 300 | 3000 | 43511 |

# PRESSURE CONVERSION CHART

## PSI TO METRIC (1 PSI = 6.89 KPA)

| Pounds per square inch (psi) | Kilo Pascals (kPa) | Mega Pascals (MPa) | Bar |
|---|---|---|---|
| 10 | 68.9 | 0.07 | 0.7 |
| 20 | 137.9 | 0.14 | 1.4 |
| 30 | 206.8 | 0.21 | 2.1 |
| 40 | 275.8 | 0.28 | 2.8 |
| 50 | 344.7 | 0.34 | 3.4 |
| 60 | 413.7 | 0.41 | 4.1 |
| 70 | 482.6 | 0.48 | 4.8 |
| 80 | 551.6 | 0.55 | 5.5 |
| 90 | 620.5 | 0.62 | 6.2 |
| 100 | 689 | 0.7 | 6.9 |
| 200 | 1379 | 1.4 | 13.8 |
| 300 | 2068 | 2.1 | 20.7 |
| 400 | 2758 | 2.8 | 27.6 |
| 500 | 3447 | 3.4 | 34.5 |
| 600 | 4137 | 4.1 | 41.4 |
| 700 | 4826 | 4.8 | 48.3 |
| 800 | 5516 | 5.5 | 55.2 |
| 900 | 6205 | 6.2 | 62.1 |
| 1000 | 6895 | 6.9 | 68.9 |
| 2000 | 13790 | 13.8 | 147.9 |
| 3000 | 20684 | 20.7 | 206.8 |
| 4000 | 27579 | 27.8 | 275.8 |
| 5000 | 34474 | 34.5 | 344.7 |
| 6000 | 41369 | 41.4 | 413.7 |
| 7000 | 48263 | 48.3 | 482.6 |
| 8000 | 55158 | 55.2 | 551.6 |
| 9000 | 62053 | 62.1 | 620.5 |
| 10000 | 68948 | 68.9 | 689 |
| 20000 | 137895 | 137.9 | 1379 |
| 30000 | 206853 | 206.8 | 2068 |
| 40000 | 275790 | 275.8 | 2758 |

Disclaimer: Conversion results are rounded approximations. Always confirm calculations using calibrated instruments or certified engineering tools when working with operational or safety-sensitive systems.

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# DESIGN AND DEVELOPMENT INPUT CHECKLIST (HOSE)

**Customer Name:** **Date:**

**Hose Description:**

| Input Description | Remark |
|---|---|
| **1. Application requirements:** | |
| a. Application area | |
| b. Temperature (including time-span) | |
| Maximum / Minimum | |
| Average | |
| c. Material to be conveyed | |
| d. Material flow rate | |
| e. Average working hours | |
| **2. Pressure requirements:** | |
| a. Working pressure | |
| b. Test pressure (proof pressure), test duration, test medium | |
| c. Burst pressure | |
| d. Surge pressure / peak pressure | |
| **3. Ambient condition:** | |
| a. Temperature | |
| b. Humidity | |
| c. Others (oil / chemical / dusty / water / marine / ozone & cold) | |
| **4. Dimensional requirements:** | |
| a. Outer diameter | |
| b. Reinforcement diameter | |
| c. Internal diameter | |
| d. Concentricity B.R to O.D | |
| e. Concentricity I.D to O.D | |
| f. Minimum bend radius | |
| g. Avg weight per meter | |
| h. Specific length / coiling method / dispatch | |
| **5. Functional & performance requirements:** | |
| a. Required impulse cycle | |
| b. Average expected life | |
| c. Customer specific performance requirement | |
| d. Customer specific test requirement | |
| e. Traceability requirement | |
| **6. Reference specification:** | |
| a. Standard & Drawings | |
| b. Customer sample / Competitor product (if needed) | |
| c. Competitor name (if any) | |
| d. Brand name | |
| e. Sample available? | |
| f. Analysis report | |
| g. Competitor's catalogue | |
| **7. Miscellaneous requirements:** | |
| a. Most common failure mode | |
| b. Consequences of failure | |
| c. Expected business volume | |
| d. Specific colour requirement | |
| e. Expected cost of product or material cost | |
| f. Expected time of realization of product | |
| g. Business opportunity in amount (£ / Month) | |
| **8. Statutory & regulatory requirements:** | |
| **9. Branding requirements:** | |
| **10. Packaging requirements:** | |

## NOTES

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