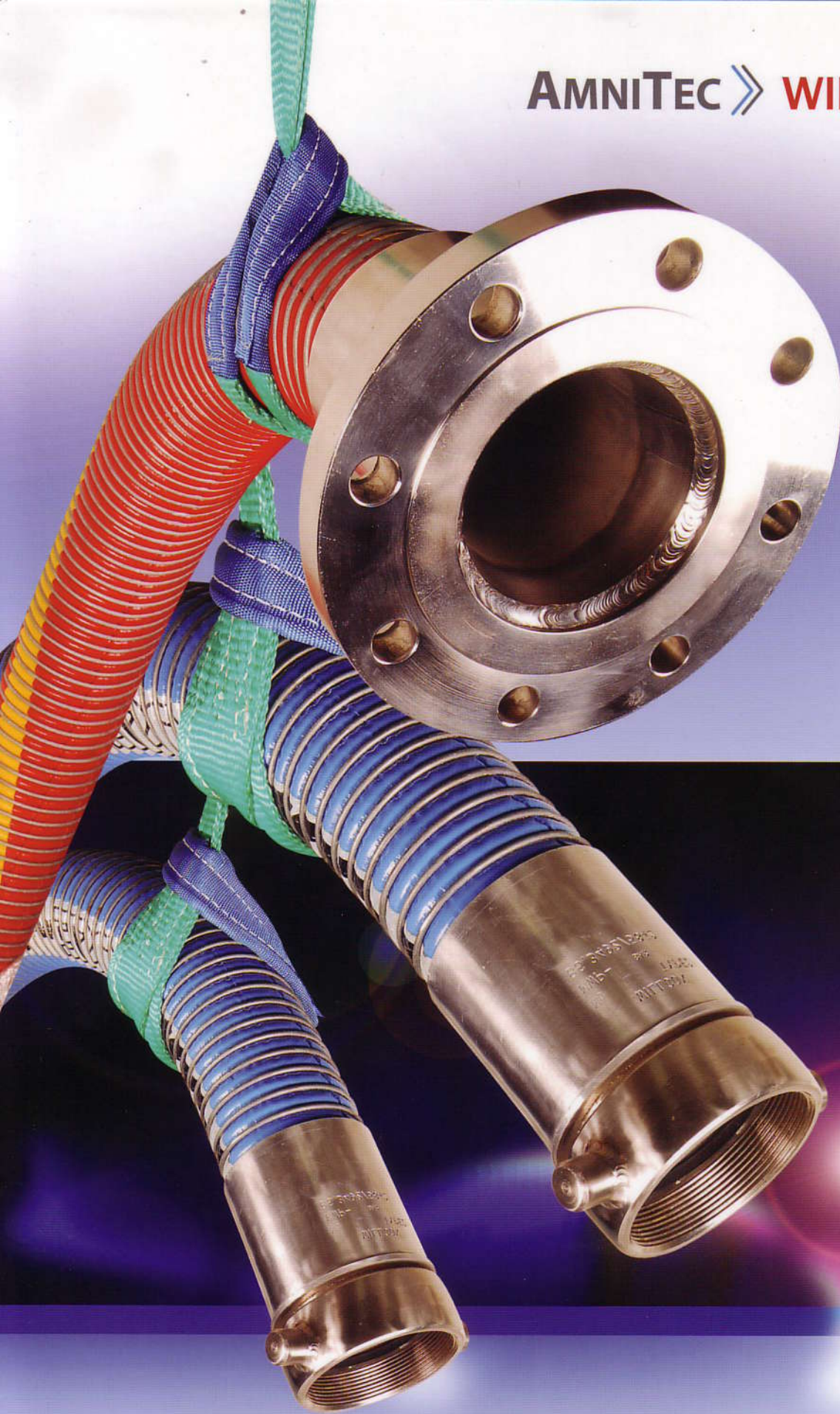


AMNITec >> WILLCOX HOSE



Oil / Ship To Shore  
Chemical  
Cryogenic

>> FLEXIBLE COMPOSITE HOSES FOR CARGO TRANSFER



# AmniTec - WILLCOXHOSE; the Vital Link in Cargo Transfer

The point of transfer is the most vulnerable link in the chain of production, distribution and use of bulk hydrocarbons, chemical and liquefied gases. The flexible link from one bulk container to another must be reliable, easy to manoeuvre, resistant to internal and external wear and suitable for whatever product is being moved, however hazardous. For over 70 years the vital link has been provided by Willcox flexible composite hoses, which are now produced to the highest standards by AmniTec Limited.

## Product Range

As the sole distributor of AmniTec-Willcoxhose in the Far East region, Eng Cheong Machinery Co. Pte. Ltd. has stocked a comprehensive range of composite hoses, specifically engineered to handle all kinds of transfer applications safely and easily.

Oil / Ship-to-Shore Willcox composite hoses are specifically engineered for the transfer of hydrocarbons, including oils, petrol, diesel, lubricating oils, paraffin and 100% aromatics.

Willcox Chemical hoses are chemically compatible and mechanically engineered to handle a wide range of hazardous chemicals.

Willcox Cryogenic hoses are designed for use with cryogenic products at temperatures down to minus 200°C at pressures up to 25 bar.

## Couplings

Eng Cheong Machinery Co. Pte. Ltd. offer a comprehensive range of end fittings for their hoses, normally supplied to customer requirements and available in a variety of materials, including carbon and stainless steel. The range also includes proprietary quick release couplings, adaptors and accessories such as blank caps and dust plugs.

## Hose protection

Beside assembling of hoses to the highest standards, Eng Cheong Machinery Co. Pte. Ltd. can also provide rope lagging or abrasion collars to the hoses for extra protection to prevent external wear and tear.



1. Rope lagging



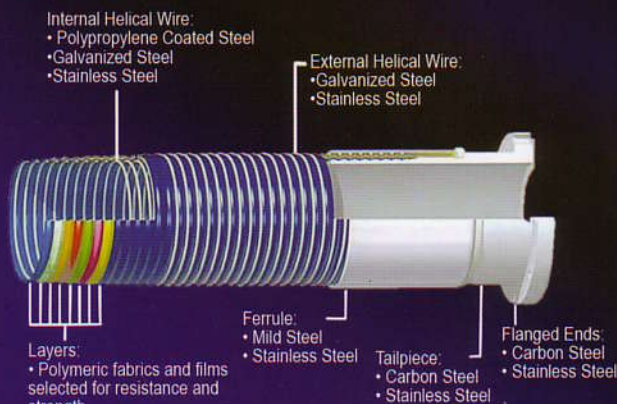
2. Abrasion collars

## Quality Standards and Testing

Since AmniTec-Willcox hoses form a vital link in the transfer of hazardous materials, they have to be totally reliable. All hoses, therefore, are manufactured under a stringent continuous quality management system, having been prototyped and certified by approved bodies such as Lloyds and the UK Marine Safety Agency in accordance with BS 5842 and IMO criteria. Full hose test certification is available to customer's requirements. The latest manufacturing and quality assurance techniques are used to guarantee high quality products.

The rated working pressure of all AmniTec-Willcox hose is based on a safety factor of at least 4:1 at ambient temperature when tested in accordance with ISO 1402/BS 5173 Part 102 Section 102.1 (1985). A hose rated 14 bar, for example, is pressure tested to 21 bar, while burst pressure would be 56 bar, minimum.

Continuous quality management, recognised by ISO 9001 approval by Lloyds Register of Quality Assurance and rigorous testing of products ensure the consistency of excellence that is demanded by customers worldwide.



3. WILLCOX HOSE CROSS SECTION



## Product Specifications

### WILLCOX® OIL / SHIP-TO-SHORE HOSE SPECIFICATION

PRODUCT RANGE	Oil Hose Standard	Marine Master Oil	Marine Master Polypropylene	Marine Master Polypropylene	Marine Master PTFE
Colour	Black	Blue	Grey	Grey	Black
Code	1031	1151	3161	4161 / 4164	4171 / 4174
Temperature	-30° to +80°C	-30° to +80°C	-30° to +80°C	-30° to +80°C	-30° to +100°C

### CONSTRUCTION

Inner Wire	Galvanised Steel	Galvanised Steel	Polypropylene / Covered Steel	316 Stainless Steel	316 Stainless Steel
Wall Materials	Polymeric fabrics and films selected for resistance and strength				
Outer Wire	Galvanised Steel	Galvanised Steel	Galvanised Steel	Galvanised Steel / 316 Stainless Steel	Galvanised Steel / 316 Stainless Steel

Nominal Internal Diameter		Max Working Pressure		Min Bend Radius		Weight		Max Manufacturing Lengths	
mm	ins	bar	p.s.i.g	mm	ins	kg/m	lb/ft	m	ft
WILLCOX® OIL HOSE - STANDARD (1031)									
25	1	14	200	100	4	0.9	0.6	20	66
38	1½	14	200	150	6	1.3	0.9	20	66
50	2	14	200	180	7	2.2	1.4	20	66
65	2½	14	200	200	8	2.7	1.8	20	66
75	3	14	200	280	11	3.3	2.2	20	66
100	4	14	200	400	16	5.1	3.4	20	66
WILLCOX® SHIP-TO-SHORE HOSE - MARINE MASTER OIL (1151)									
100	4	14	225	400	16	6.5	4.3	20	66
150	6	14	225	500	20	11	7.4	20	78
200	8	14	225	740	29	15	10	15	50
250	10	10.5	150	920	36	21	14	12	40
WILLCOX® SHIP-TO-SHORE HOSE - MARINE MASTER CHEMICAL (3161)									
100	4	14	225	400	16	6.5	4.3	20	66
150	6	14	225	500	20	11	7.4	24	78
200	8	14	225	740	29	15	10	15	50
WILLCOX® SHIP-TO-SHORE- MARINE MASTER CHEMICAL (4161)									
100	4	14	225	400	16	6.5	4.3	20	66
150	6	14	225	500	20	11	7.4	24	78
200	8	14	225	740	29	15	10	15	50
WILLCOX® SHIP-TO-SHORE HOSE - MARINE MASTER CHEMICAL (4171/4174)									
100	4	14	225	400	16	6.5	4.3	20	66
150	6	14	225	500	20	11	7.4	24	78
200	8	14	225	740	29	15	10	15	50
250	10	10.5	150	920	36	21	14	12	40

PIGGING MUST NOT BE USE UNDER ANY CIRCUMSTANCES

#### Construction

Willcox® Oil / Ship-To-Shore hoses are manufactured from multi-layers of polypropylene fabric and film with a weatherproof and abrasion resistant outer cover. The hose layers are held and tensioned between internal and external wire helices. Computer aided design has resulted in exceptional strength-to-weight ratios and extreme flexibility, giving the hose excellent handling characteristics. This ensures ready operator acceptance and encourages good usage practice. All hoses are supplied with factory-fitted end connections to the customer's requirement.

#### Temperatures

All hose are suitable for the temperature range -30°C to +80°C but these are subject to pressure de-rating factors. Higher temperatures are permitted for intermittent use subject to confirmation by AmniTec Technical Department.

#### Standards

Willcox Oil hoses comply with BS 3492 (1987) AX & BX and BS 5842 (1980). The marine master comply with various national and International standards including BS5842 (1980) and US Coast Guard Regulations. All hoses comply to EN13765: 2003



# Product Specifications

## WILLCOX® CHEMICAL HOSE - POLYPROPYLENE / PTFE SPECIFICATION

PRODUCT RANGE	Polypropylene Heavy Duty	Polypropylene Heavy Duty	Polypropylene Heavy Duty	PTFE Heavy Duty	PTFE Heavy Duty
Colour	Grey	Blue	Grey	Light Blue	Light Blue
Code	3091	4091	4094	4121	4124
Temperature	-30° to +80°C	-30° to +80°C	-30° to +80°C	-30° to +100°C	-30° to +100°C

### CONSTRUCTION

Inner Wire	Polypropylene Covered Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Wall Materials	Polypropylene / PTFE fabrics and films selected for resistance and strength				
Outer Wire	Galvanised Steel	Galvanised Steel	316 Stainless Steel	Galvanised Steel	316 Stainless Steel

Nominal Internal Diameter		Max Working Pressure		Min Bend Radius		Weight		Max Manufacturing Lengths	
mm	ins	bar	p.s.i.g	mm	ins	kg/m	lb/ft	m	ft
WILLCOX® CHEMICAL HOSE- POLYPROPYLENE HEAVY (3091)									
25	1	14	200	100	4	0.9	0.6	20	66
38	1½	14	200	127	5	1.2	0.8	20	66
50	2	14	200	178	7	1.8	1.2	20	66
65	2½	14	200	178	7	2.5	1.7	20	66
75	3	14	200	203	8	3.0	2.0	20	66
100	4	14	200	304	12	4.3	2.9	20	66
WILLCOX® CHEMICAL HOSE - POLYPROPYLENE HEAVY (4091/4094)									
25	1	14	200	100	4	0.9	0.6	20	66
38	1½	14	200	127	5	1.2	0.8	20	66
50	2	14	200	178	7	1.8	1.2	20	66
65	2½	14	200	178	7	2.5	1.7	20	66
80	3	14	200	203	8	3.0	2.0	20	66
100	4	14	200	304	12	4.3	2.9	20	66
WILLCOX® CHEMICAL HOSE- PTFE HEAVY (4121/4124)									
25	1	14	200	100	4	0.9	0.6	20	66
38	1½	14	200	127	5	1.2	0.8	20	66
50	2	14	200	178	7	1.8	1.2	20	66
65	2½	14	200	178	7	2.5	1.7	20	66
75	3	14	200	203	8	3.0	2.0	20	66
100	4	14	200	304	12	4.3	2.9	20	66

PIGGING MUST NOT BE USE UNDER ANY CIRCUMSTANCES

### Construction

Willcox® PTFE (Polytetrafluorethylene) hoses are designed for the very searching solvents and chemicals now in use, e.g. Butyl Acetate, M.E.K. (Methyl Ethyl Ketone), Molten Sulphur, Perchloroethylene, Trichloroethylene, Iso Propyl Acetate, Methyl Iso Butyl Ketone, Naphtha, Phthalic Anhydride, Nitric Acid, Sulphuric Acid, etc. These hoses are manufactured with the extensive use of PTFE material. They have a PTFE lining supported with layers of chemically resistant film and tubes. In addition they are manufactured with a weatherproof, abrasion-resistant outer cover, reinforced with internal and external spiral wires.

### Temperatures

Temperatures are subjected to pressure de-rating factors. Higher temperatures are permitted for intermittent use subject to confirmation by AmniTec Technical Department.

### Standards

Chemical hoses comply with various national and international standards including BS5842 (1980) and US Coast Guard Regulations and can be marked accordingly. All hoses comply to EN13765: 2003.



# Product Specifications

## WILLCOX® CRYOGENIC HOSE SPECIFICATION

PRODUCT RANGE		Cryogenic Hose 50				Cryogenic Hose 200			
Colour		White				White			
Code		4014				4004			
Temperature		-50° to +50°C				-200° to +50°C			
CONSTRUCTION									
Inner Wire		316 Stainless Steel				316 Stainless Steel			
Wall Materials		Polymeric fabrics and films selected for resistance and strength							
Outer Wire		316 Stainless Steel				316 Stainless Steel			
Nominal Internal Diameter		Max Working Pressure		Min Bend Radius		Weight		Max Manufacturing Lengths	
mm	ins	bar	p.s.i.g	mm	ins	kg/m	lb/ft	m	ft
WILLCOX® CRYOGENIC HOSE - 50 (4014)									
25	1	25	362	150	6	0.9	0.6	15	50
38	1½	25	362	175	7	1.6	1.1	15	50
50	2	25	362	200	8	2.4	1.6	15	50
75	3	25	362	250	10	4.5	3.0	15	50
100	4	21	300	500	20	7.5	5.0	15	50
150	6	21	300	660	25	13.8	9.3	14	45
200	8	15	215	910	36	18.7	12.5	12	40
WILLCOX® CRYOGENIC HOSE - 200 (4004)									
25	1	10.5	150	150	6	0.7	0.5	15	50
38	1½	10.5	150	175	7	1.2	0.8	15	50
50	2	10.5	150	200	8	2.0	1.3	15	50
75	3	10.5	150	250	10	3.3	2.2	15	50
100	4	10.5	150	500	20	7.5	5.0	15	50
150	6	10.5	150	660	25	13.8	9.3	14	45
200	8	10.5	150	910	36	18.7	12.5	12	40
250	10	10.5	150	2500	98	22.5	15.1	10	33

PIGGING MUST NOT BE USED UNDER ANY CIRCUMSTANCES

### Construction

Willcox® Cryogenic 50 is manufactured from multi layers of polyamide fabric and films whilst Cryogenic 200 utilises polyester fabric and BOPP film. Both may be further insulated by an additional rope lagging or abrasion collar.

Willcox® Cryogenic 50 and 200 hoses have stainless steel inner and outer wire achieving gual wire electrical continuity by bonding to the end fittings thus safely dissipating static electrical charges.

Willcox® Cryogenic hoses provide a high degree of safety with hose material having complete product compatibility to allow LPG and LNG to be handled safely.

### Working Pressures

Working pressures across the range are based on a minimum safety factor of 5:1.

### Hose Lengths

Willcox® Cryogenic hoses are supplied in lengths up to 15 metres depending on diameter. All assemblies have factory-fitted end connections.

### Standards

Willcox® Cryogenic assemblies in bore sizes 4", 6" and 8" are certified by the UK Marine Safety Agency as complying with paragraphs 5.4 and 5.7 of the IMO Gas Carrier Code. Cryogenic assemblies are manufactured in accordance to EN13765-2003.



榮昌機械私人有限公司

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Co. Reg. No. 199205187E



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