

SHIPBUILDING & MILITARY



Standards & Regulations

			
3-A Sanitary Standards Inc.	Decreto Ministeriale	European Commission	Energy Institute
			
European Norms	Food and Drug Administration	International Organization for Standardization	Marine Equipment Directive
			
Society of Automotive Engineers	U.S. Department of Defence	U.S. Coast Guard – SAE J1942	

Approvals & Certificates

			
American Bureau of Shipping	American Petroleum Institute	Bundesamt für Ausrüstung, Informationstechnik und Nutzung der Bundeswehr	Bureau Veritas
			
Japanese Ship Classification Society	China Classification Society	Chinese Mining	Det Norske Veritas
			
Dreal	Korean Register	Lloyd's Register	Registro Italiano Navale
			
United States Department of Transportation	U.S. Mine Safety and Health Administration		

ALFAGOMMA

Since 1956 Alfagomma has been manufacturing and delivering top quality products all over the world.

Alfagomma believe in the importance of offering an excellent service to all its customers along with a continuous new product research and development, a constant high quality exceeding ISO 9001 quality standards and full compliance with ISO 14001 environmental norms, as well as a constantly upgrading range of Type Approvals.

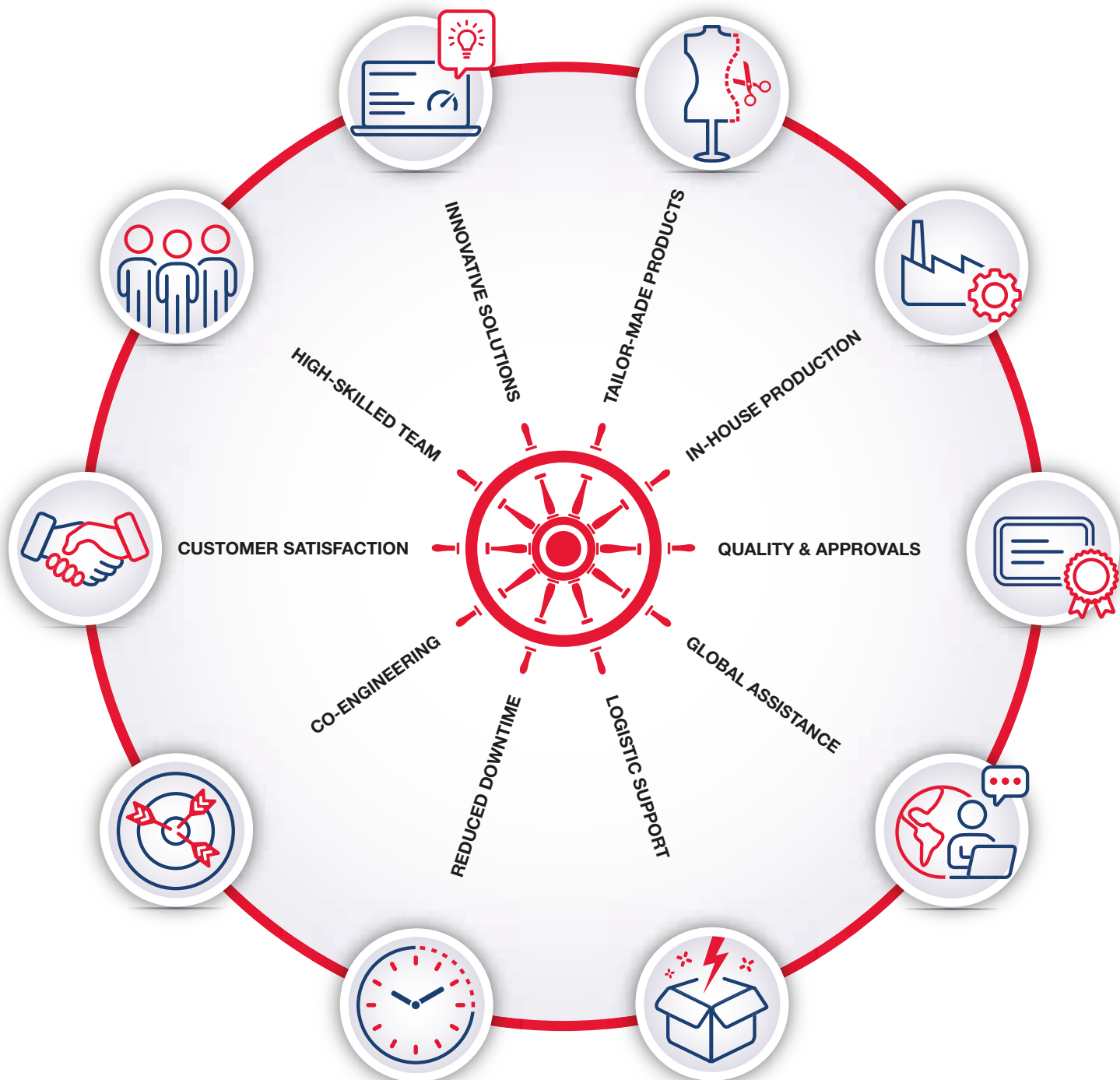
ALFAGOMMAGROUP



 **ALFAGOMMA** //  **DUNLOPHIFLEX** //  **HIFLEX** //  **ARGUS**



OUR EXPERIENCE ON BOARD



// DOGLEG

Alfagomma Dogleg is an innovative and easy to install shock and vibration dampener hose assembly for naval vessels.

Alfagomma Dogleg provides the required flexibility to **absorb movement in multiple directions** and guarantees long service life and **advanced performances** in the severe marine environment.

Compared to current solutions available on the market, Dogleg assemblies are **easier to install and replace directly on-board by non-specialised field technicians**, thus reducing costs and lengthy downtimes.

The solution meets the strict standards required by military navies and shipbuilding companies for new naval units and refits.



AN INNOVATIVE SOLUTION

- **SINGLE SOURCE INTEGRATED SYSTEM SUPPLIER**
- **IN-HOUSE** MANUFACTURING
- ASSEMBLING AND TESTING (**ISO 9001-14001**)
- **RINA TYPE APPROVAL** FOR MARINE REQUIREMENTS (TAC)
- EUROPEAN **MARINE EQUIPMENT DIRECTIVE** (MED)
- **MIL-STD-167** (VIBRATION) AND **MIL-S-901** (SHOCK)
- NO NEED OF HIGH-SKILLED TECHNICIANS

// THUNDER-LOCK

Thunder-lock is a **revolutionary weldless connection for rigid pipes**, providing the same reliability as welding without the associated risks and costs.

The tube is **permanently formed and sealed** to the end configuration, through a **cold connection**, and operated using a **compact-size portable tool**, that doesn't require **any specialized technical personnel** to run. In addition to a reduction in costs and ease of use, the system guarantees a **high degree of safety**: incorporating leakage-free pipelines, no release of fumes and toxic gases, requiring no post-welding treatments; these being just some of the benefits this system provides.

Thunder-lock makes possible the **easily and fast connection of pipelines**, even in confined spaces, such as those found on board ships, representing the **best alternative to welding** and in compliance with the stringent requirements requested in both the **naval and military fields**.

A REVOLUTIONARY CONNECTION SYSTEM

FAST & SAFE

- COMPLETED IN 15 TO 20 SECONDS
- EASY ON-SITE INSTALLATION
- NO NEED FOR HIGHLY SKILLED TECHNICIANS
- NO NEED FOR FIRE-FIGHTING SUPERVISION
- DESIGNED WITH SAFETY BACKUP O-RING
- HIGH RATING PRESSURES

CLEAN & SMART

- COLD CONNECTION
- NO NEED FOR FLUSHING
- GREEN TECHNOLOGY
- FOR METRIC TUBES AND NPS PIPES
- LARGE RANGE OF CONFIGURATIONS
- WIDE VARIETY OF MATERIALS



// RUBBER EXPANSION JOINTS

Alfagomma AG Joint range includes **highly engineered rubber expansion joints**, designed to safely absorb all directional movements, and relieve stress in the pipeline systems.

The excellence of AG Joint products is the result of a **high-performance modelling software**, an extremely **innovative robotic technology** and **top-quality raw material combination**.

The cutting-edge industrial science, applied to the design and manufacturing process, provides a **cost-effective solution** that can be tailor-made to **customer's needs**.

Prototyping trials are conducted with minimal material waste and risk of errors, thanks to an advanced high-tech system, completely removing the associated costs that traditional prototyping trials command. The process involves **FEA analysis** and **manufacturing using virtual simulation**, prior to physical production, while robotics technology ensures **accuracy and reliability** of the final products, **according to the requirements set**.

ADVANCED MANUFACTURING TECHNOLOGY

- CUSTOMIZED PRODUCTS
- CO-ENGINEERED PROJECTS
- LARGE-SCALE OR SINGLE PARTS PRODUCTION
- SUITABLE FOR NUMEROUS APPLICATIONS
- HIGH REPEATABILITY WITHOUT ERRORS
- FEA ANALYSIS AND VIRTUAL SIMULATION
- ROBOTICS MANUFACTURING
- COST-EFFECTIVE SOLUTION



// HYDRAULIC HOSE

DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
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// WIRED BRAID

 // FLEXOPAK 1SC High pressure hydraulic lines. One high tensile steel braid.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• EN 857 1SC • ISO 11237 • MED 2014/90/EU	  
 // AT3K - MT High pressure hydraulic lines. One high tensile steel braid. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• EN 857 1SC ø 1/4", 5/16", 3/8" • ISO 11237 • Alfagomma proprietary hose	 
 // FLEXOR 1SN/R1AT - MT High pressure hydraulic lines. One high tensile steel braid. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F) • CO₂ systems just hose assemblies with AD1 couplings up to size 1"	• SAE 100 R1AT • EN 853 1SN • MED 2014/90/EU • SAE J1942	      
 // FLEXOR 5 Medium pressure hydraulic lines. One high tensile steel braid.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• SAE 100 R5	
 // FLEXOPAK 2 - MT High pressure hydraulic lines. Two high tensile steel braids. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• SAE 100 R16 • EN 857 2SC • ISO 11237 • MED 2014/90/EU • SAE J1942	       
 // FLEXOR 2SN/R2AT - MT High pressure hydraulic lines. Two high tensile steel braids. Minetuff cover.	• Hydraulic fluid having a flash point higher than 150 °C (302 °F) (closed cup test) • Air and compressed air • Sea and fresh water • CO₂ fire extinguishing systems • Sanitary systems	• SAE 100 R2AT • EN 853 2SN • MED 2014/90/EU • SAE J1942	       

DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
 // ALFAFOREST High pressure hydraulic lines. Three high tensile steel braids.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• MED 2014/90/EU • Alfagomma proprietary hose	
 // WIRED SPIRAL <i>NEW</i> // 5K STEEL ARMOUR API 16D API Spec 16D Flame resistance. Two high tensile steel braids or four/six high tensile steel spirals.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• API 16-D • Alfagomma proprietary hose	
 // ALFABIOTECH // ALFABIOTECH 3000 - MT Very high performance in pressure, pulsing and flexing. Four/six high tensile steel spirals. Isobaric hose. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• ISO 18752 • exceeds SAE R12 • Alfagomma proprietary hose	
 // ALFABIOTECH 4000 - MT Very high performance in pressure, pulsing and flexing. Four high tensile steel spirals. Isobaric hose. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• ISO 18752 • MED 2014/90/EU • SAE J1942	
 // ALFABIOTECH 5000 - MT Very high performance in pressure, pulsing and flexing. Four/six high tensile steel spirals. Isobaric hose. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• ISO 18752 • MED 2014/90/EU • SAE J1942	

DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
 // ALFABIOTECH 5000 PLUS - MT Very high performance in pressure, pulsing and flexing. Four high tensile steel spirals. Isobaric hose. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• ISO 18752 • MED 2014/90/EU • SAE J1942	
 // ALFABIOTECH 6000 - MT Very high performance in pressure, pulsing and flexing. Four/six high tensile steel spirals. Isobaric hose. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• ISO 18752 • exceeds SAE R15 • MED 2014/90/EU • SAE J1942	

// ALFABIOTECH EVOLUTION NEW

 // ALFABIOTECH EVOLUTION 3000 - MT Very high performance in pressure, pulsing and flexing. Improved bend radius. Four high tensile steel spirals. Isobaric hose. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• ISO 18752 • exceeds SAE R12 • Alfagomma proprietary hose • SAE J1942	
 // ALFABIOTECH EVOLUTION 4000 - MT Very high performance in pressure, pulsing and flexing. Improved bend radius. Four high tensile steel spirals. Isobaric hose. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• ISO 18752 • MED 2014/90/EU • SAE J1942	
 // ALFABIOTECH EVOLUTION 5000 - MT Very high performance in pressure, pulsing and flexing. Improved bend radius. Four/six high tensile steel spirals. Isobaric hose. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• ISO 18752 • MED 2014/90/EU • SAE J1942	

DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES		
 // ALFABIOTECH EVOLUTION 5000 PLUS - MT Very high performance in pressure, pulsing and flexing. Improved bend radius. Four high tensile steel spirals. Isobaric hose. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• ISO 18752 • MED 2014/90/EU • SAE J1942			
 // ALFABIOTECH EVOLUTION 6000 - MT Very high performance in pressure, pulsing and flexing. Improved bend radius. Four/six high tensile steel spirals. Isobaric hose. Minetuff cover.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• ISO 18752 • exceeds SAE R15 • MED 2014/90/EU • SAE J1942			
// SUPERTUFF					
 // ALFABIOTECH 5000 - ST Very high performance in pressure, pulsing and flexing. Four high tensile steel spirals. Isobaric hose. Supertuff cover for excellent abrasion resistance.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• SAE J1942			
					
					
 // ALFABIOTECH 6000 - ST Very high performance in pressure, pulsing and flexing. Four/six high tensile steel spirals. Isobaric hose. Supertuff cover for excellent abrasion resistance.	• Petroleum based -40 °C +100 °C (-40 °F +212 °F) • Water based hydraulic fluids -40 °C +70 °C (-40 °F +158 °F) • Water and air 0 °C +70 °C (32 °F +158 °F)	• ISO 18752 • exceeds SAE R15 • MED 2014/90/EU • SAE J1942			
					
					

DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
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// HIGH TEMPERATURE



// R5 EVOLUTION HT 150

Medium pressure hydraulic lines. Specially designed for high temperature applications.

One high tensile steel braid.

- Hydraulic lines
-40 °C +150 °C (-40 °F +302 °F)
- Fuel oil
- Antifreeze solutions
- Air and water systems

- SAE R5



// 1SN EVOLUTION HT 150

High pressure hydraulic lines. Specially designed for high temperature applications.

One high tensile steel braid.
Not recommended for steam service.

- Hydraulic lines
-40 °C +150 °C (-40 °F +302 °F)
- Fuel oil
- Antifreeze solutions
- Air and water systems

- SAE 100 R1AT
- EN 853 1SN
- ISO 1436-1
- MED 2014/90/EU
- Alfagomma proprietary hose



// OIL RETURN LINES



// FLEXOR R4

Suction and delivery.

Textile reinforced with embedded steel helix wires.

- Hydraulic lines
-40 °C +100 °C (-40 °F +212 °F)
- Fuel oil
- Antifreeze solutions
- Air and water

- SAE 100 R4
- Flame resistance: MSHA



// INDUSTRIAL HOSE

PETROCHEMICAL



// 605AA

Fuel-oil S&D
10 bar (150 psi)

Safety factor: 3:1

ID range: 19 - 203 mm (3/4 - 8")

Temp. range: -30 +80 °C (-22 +176 °F)

- Fuels
max 50% aromatic content
- Oils
- Bilge water
- Fresh water
- Sea water

- exceed SAE 100R4
- SAE J2006 Style R2
- ISO 13363 Type 2 Class B
- Flame resistance: MSHA



DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
 // 658AA Measured fuel dispensing systems 16 bar (240 psi) Safety factor: 3:1 ID range: 25 - 51 mm (1 - 2") Temp. range: -30 +55 °C (-22 +131 °F)	• Fuels max 50% aromatic content • Oxygenated fuels max 15% • Oils • Bilge water • Fresh water • Sea water	• EN 1360 Type 1 Grade Ω • Flame resistance: according to reference standard	
 // 619AA Fuel-oil S&D 16 bar (240 psi) Safety factor: 4:1 ID range: 19 - 102 mm (3/4 - 4") Temp. range: -30 +70 °C (-22 +158 °F)	• Fuels max 50% aromatic content • Oxygenated fuels max 15% • Oils • Bilge water • Fresh water • Sea water	• EN 12115 Type SD Grade Ω/T • exceed EN 1761 Type SD Grade Ω • Flame resistance: according to reference standard	
 // 65AAA Aviation fuelling 10 bar (150 psi) Safety factor: 4:1 ID range: 38 mm (1 1/2") Temp. range: -30 +65 °C (-22 +150 °F)	• Aviation fuels max 30% aromatic content	• EI 1529 Grade 1 Type C • Flame resistance: according to reference standard	
 // 656AA Aviation fuelling 20 bar (300 psi) Safety factor: 4:1 ID range: 25 - 102 mm (1 - 4") Temp. range: -30 +65 °C (-22 +150 °F)	• Aviation fuels max 30% aromatic content	• ISO 1825 Type C Grade Ω • EI 1529 Grade 2 • Flame resistance: NFPA 407	
 // 611AA Aviation fuelling-defuelling 20 bar (300 psi) Safety factor: 4:1 ID range: 25 - 75 mm (1 - 3") Temp. range: -30 +65 °C (-22 +150 °F)	• Aviation fuels max 30% aromatic content	• ISO 1825 Type F Grade Ω • Flame resistance: according to reference standard	

DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
 // 659AA LPG delivery 25 bar (375 psi) Safety factor: 4:1 ID range: 13 - 51 mm (1/2 - 2") Temp. range: -30 +70 °C (-22 +158 °F)	• LPG	• EN 1762 Type D Grade M • Flame resistance: according to reference standard	

MARINE

 // 654AA BOAT <i>NEW</i> Marine fuel feed - Soft wall Working pressure: 20 bar (300 psi) Safety factor: 3:1 ID range: 6 - 25 mm (1/4 - 1") Temp. range: -20 +100 °C (-4 +212 °F)	• Petrol and diesel fuels • Oxygenated fuels max 10%	• ISO 7840/A1 • SAE J1527/A1/R1 • 2013/53/EU • Flame resistance: according to reference standard	
 // 616AA BOAT <i>NEW</i> Marine fuel fill - Hard wall Working pressure: 10 bar (150 psi) Safety factor: 3:1 ID range: 19 - 60 mm (3/4 - 2 3/8") Temp. range: -20 +100 °C (-4 +212 °F)	• Petrol and diesel fuels • Oxygenated fuels max 10%	• ISO 7840/A1 • SAE J1527/A1/R2 • 2013/53/EU • Flame resistance: according to reference standard	
 // 653AA Marine exhaust - Soft wall Working pressure: 3 bar (45 psi) Safety factor: 5:1 ID range: 25 - 203 mm (1 - 8") Temp. range: -30 +100 °C (-22 +212 °F)	• Wet exhaust • Bilge water • Fuels max 40% aromatic content • Oils	• SAE J2006 Style R1 • ISO 13363 Type 1 Class B	
 // 6E1AA Marine exhaust - Hard wall Working pressure: 3 bar (45 psi) Safety factor: 5:1 ID range: 25 - 203 mm (1" - 8") Temp. range: -30 +100 °C (-22 +212 °F)	• Wet exhaust • Bilge water • Fuels max 40% aromatic content • Oils	• SAE J2006 Style R1 • ISO 13363 Type 1 Class B	

DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
 // 266LL Marine sanitary hose - PVC Working pressure: 8 - 6 bar (120 - 90 psi) Safety factor: 3:1 ID range: 19 - 38 mm (3/4 - 1 1/2") Temp. range: -5 + 60 °C (+23 +140 °F)	• Grey-black water		
 // 202LL Marine sanitary hose 7 bar (100 psi) Safety factor: 3:1 ID range: 19 - 51 mm (3/4 - 2") Temp. range: -30 +80 °C (-22 +176 °F)	• Grey-black water	• ISO 8099	

OIL & GAS - DOCK

 // 60GAA Fuel-oil S&D 15 bar (225 psi) - Built in fittings Safety factor: 4:1 ID range: 100 - 300 mm (4 - 12") Temp. range: -20 +82 °C (-4 +180 °F)	• Petroleum products max 50% aromatic content • Crude oil	• EN 1765 Type S15	
 // 60JAA LPG S&D 25 bar (375 psi) - Built in fittings Safety factor: 4:1 ID range: 100 - 300 mm (4 - 12") Temp. range: -30 +70 °C (-22 +158 °F)	• LPG	• EN 1762 Type SD Grade M	

DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
OIL & GAS - RIG SUPPLY			
 // 648AA Fuel-liquid mud 20 bar (300 psi) - Soft wall Safety factor: 4:1 ID range: 51 - 152 mm (2 - 6") Temp. range: -30 + 90 °C (-22 + 194 °F)	• Petroleum products max 50% aromatic content • Methanol • Oil based mud • Drill water • Fresh water • Sea water	• Flame resistance: EN 1762 - Annex A	 ABS Type approved hose assemblies
 // 615AA Fuel-liquid mud 20 bar (300 psi) - Hard wall Safety factor: 4:1 ID range: 51 - 152 mm (2 - 8") Temp. range: -30 + 90 °C (-22 + 194 °F)	• Petroleum products max 50% aromatic content • Methanol • Oil based mud • Drill water • Fresh water • Sea water	• Flame resistance: EN 1762 - Annex A	 ABS Type approved hose assemblies
 // 622AA Fuel-liquid mud 40 bar (600 psi) - Hard wall Working pressure: 40 bar (600 psi) - 35 bar (535 psi) depending on ID Safety factor: 4:1 ID range: 76 - 127 mm (3 - 5") Temp. range: -30 + 90 °C (-22 + 194 °F)	• Petroleum products max 50% aromatic content • Methanol • Oil based mud • Drill water • Fresh water • Sea water	• Flame resistance: EN 1762 - Annex A	 ABS Type approved hose assemblies
 // 748AA Bulk material 20 bar (300 psi) - Soft wall Safety factor: 4:1 ID range: 102 - 127 mm (4 - 5") Temp. range: -30 + 80 °C (-22 + 176 °F)	• Cement • Barite • Mud • Fresh water • Sea water		 ABS Type approved hose assemblies

DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
 // 715AA Bulk material 20 bar (300 psi) - Hard wall Safety factor: 4:1 ID range: 102 - 127 mm (4 - 5") Temp. range: -30 +80 °C (-22 +176 °F)	• Cement • Barite • Mud • Fresh water • Sea water		 ABS Type approved hose assemblies
 // 448LI Potable water 20 bar (300 psi) - Soft wall Safety factor: 4:1 ID range: 51 - 102 mm (2 - 4") Temp. range: -30 +80 °C (-22 +176 °F)	• Potable water		 ABS Type approved hose assemblies
 // 415LI Potable water 20 bar (300 psi) - Hard wall Safety factor: 4:1 ID range: 51 - 102 mm (2 - 4") Temp. range: 30 +80 °C (-22 +176 °F)	• Potable water		 ABS Type approved hose assemblies
 // RIGMASTER WATER HD Water S&D 20 bar (300 psi) - Heavy Duty Safety factor: 3:1 ID range: 102 mm (4") Temp. range: -30 + 90 °C (-22 + 194 °F)	• Fresh water • Sea water • Glycole		

OIL & GAS - FIRE FIGHTING

 // 230AH Sea water - 20 bar (300 psi) Fire Resistant 30 minutes 800 °C Safety factor: 4:1 ID range: 32 - 203 mm (1 1/4 - 8") Temp. range: -30 + 100 °C (-22 +212 °F)	• Sea water • Petroleum products max 50% aromatic content	• Flame resistance: ISO 15540	 ABS Type approved hose assemblies
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DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
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POTABLE WATER



// 455LE

Liquid food delivery
10 bar (150 psi)

Safety factor: 3:1

ID range: 13 - 51 mm (1/2 - 2")

Temp. range: -30 + 100 °C (-22 +212 °F)

- Potable water
- Liquid food

- FDA
- 3-A Sanitary Standards
- D.M. 21/03/73
- EC 2004/1935
- EC 2006/2023


 ø 13 mm
 RINA Type approved
 hose assembly
 according to D.M.
 174/2004



// 405LE

Liquid food S&D
10 bar (150 psi)

Safety factor: 3:1

ID range: 19 - 102 mm (3/4 - 4")

Temp. range: -30 + 100 °C (-22 +212 °F)

- Potable water
- Liquid food

- FDA
- 3-A Sanitary Standards
- D.M. 21/03/73
- EC 2004/1935
- EC 2006/2023


 ø 19 - 38 mm
 RINA Type approved
 hose assembly
 according to D.M.
 174/2004

MILITARY & DEFENCE



// 6M0AJ

Lightweight liquid fuel transfer -
Collapsible - Antistatic wire

Working pressure: 5 bar (75 psi)

Safety factor: 4:1

ID range: 51 mm (2")

Temp. range: -30 +80 °C (-22 +176 °F)

- Kerosene based petroleum fuel
- Water

- MIL-PRF-53064



// 6M1AA

Liquid fuel transfer - Collapsible -
Antistatic wire

Working pressure: 9 - 5 bar (125 - 75 psi)
depending on ID

Safety factor: 4:1

ID range: 38 -76 m (1 1/2 - 3")

Temp. range: -30 +80 °C (-22 +176 °F)

- Kerosene based petroleum fuel
- Water

- MIL-PRF-370 Type A

DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
 // 6M1AJ Liquid fuel transfer - Collapsible - Antistatic wire Working pressure: 7 bar (100 psi) Safety factor: 4:1 ID range: 51 mm (2") Temp. range: -30 +80 °C (-22 +176 °F)	• Kerosene based petroleum fuel • Water	• MIL-PRF-370 Type A	
 // 6A1AA Liquid fuel transfer - Non collapsible - Antistatic wire Working pressure: 5 -9 bar (75 - 125 psi) depending on ID Safety factor: 4:1 ID range: 38 - 152 mm (1 1/2 - 6") Temp. range: -30 +80 °C (-22 +176 °F)	• Kerosene based petroleum fuel • Water	• MIL-PRF-370 Type B	
 // 6A1AJ Liquid fuel transfer - Non collapsible - Antistatic wire Working pressure: 5 -9 bar (75 - 125 psi) depending on ID Safety factor: 4:1 ID range: 38 - 102 mm (1 1/2 - 4") Temp. range: -30 +80 °C (-22 +176 °F)	• Kerosene based petroleum fuel • Water	• MIL-PRF-370 Type B	

DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
 // 6M3AA Fuel handling system - Collapsible - Antistatic wire Working pressure: 10 bar (150 psi) Safety factor: 4:1 ID range: 76 - 152 mm (3 - 6") Temp. range: -30 +80 °C (-22 +176 °F)	• Petroleum fuels	• MIL-PRF-11588 Type III • MIL-DTL-22240 Type A	
 // 6M4AA Liquid petroleum fuels, dispensing - Collapsible Working pressure: 7 bar (100 psi) Safety factor: 4:1 ID range: 51 mm (2") Temp. range: -30 +80 °C (-22 +176 °F)	• Automotive gasoline • Aviation gasoline • Jet fuels • Diesel fuels	• MIL-H-82127 (for replacement purpose only)	
 // 6A3AA Gasoline and jet fuel S&D Working pressure: 7 bar (100 psi) Safety factor: 4:1 ID range: 51 - 76 mm (2 - 3") Temp. range: -30 +80 °C (-22 +176 °F)	• Aromatic gasoline • Jet fuels • Demineralized water	• MIL-DTL-27516	
 // 65AAA Aviation fuelling 10 bar (150 psi) Safety factor: 4:1 ID range: 38 mm (1 1/2") Temp. range: -30 +65 °C (-22 +150 °F)	• Petroleum fuels max 30% aromatic content	• EI 1529 Grade 1 Type C • Flame resistance: according to reference standard	
 // 656AA Aviation fuelling 20 bar (300 psi) Safety factor: 4:1 ID range: 25 - 102 mm (1 - 4") Temp. range: -30 +65 °C (-22 +150 °F)	• Petroleum fuels max 30% aromatic content	• ISO 1825 Type C Grade Ω • EI 1529 Grade 2 • Flame resistance: NFPA 407	

DESCRIPTION	APPLICATION & FLUID COMPATIBILITY	STANDARDS & REGULATIONS	APPROVALS & CERTIFICATES
 // 611AA Aviation fuelling-defuelling 20 bar (300 psi) Safety factor: 4:1 ID range: 25 - 75 mm (1 - 3") Temp. range: -30 +65 °C (-22 +150 °F)	• Aviation fuels max 30% aromatic content	• ISO 1825 Type F Grade Ω • Flame resistance: according to reference standard	
 // 456LJ Potable water discharge Working pressure: 7 bar (100 psi) Safety factor: 4:1 ID range: 25 - 102 mm (1 - 4") Temp. range: -30 +80 °C (-22 +176 °F)	• Potable water	• A-A-59567 Grade 3 Class 2	
 // 406LA Potable water S&D Working pressure: 5 bar (75 psi) Safety factor: 4:1 ID range: 51 mm (2") Temp. range: -30 +80 °C (-22 +176 °F)	• Potable water	• A-A-59566 Grade A Style A Class 2	
 // 406LJ Potable water S&D Working pressure: 5 bar (75 psi) Safety factor: 4:1 ID range: 51 - 102 mm (2 - 4") Temp. range: -30 +80 °C (-22 +176 °F)	• Potable water	• A-A-59566 Grade A Style A Class 2	

// **NOTES**

Handwriting practice lines consisting of 28 horizontal dotted lines.

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