



REFERENCE LIST (Navy)

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| SHIPYARD | SHIP OWNER | VESSEL TYPE | HULL NUMBER | YEAR |
|---------------------------|----------------------|----------------------------|---------------------------------|------|
| ARSENAL DE MARINHA DO RIO | BRAZILIAN NAVY | CORVETTE | CV 02 - BARROSO | 2003 |
| BOUSTEAD NAVAL SHIPYARD | ROYAL MALAYSIAN NAVY | LCS (LITTORAL COMBAT SHIP) | LCS 1-2-3-4-5-6 | 2015 |
| CANT. NAV. DE POLI | ITALIAN NAVY | TANKER | 131-132-133-134-135-136-137 | 1988 |
| CANT. NAV. DE POLI | ITALIAN NAVY | TANKER | 149-150 | 1992 |
| CANT. NAV. FERRARI | ITALIAN NAVY | TANKER | 70 | 1988 |
| CANT. NAV. FERRARI | ITALIAN NAVY | FLOATING DOCK | 75 | 1989 |
| CANT. NAV. FERRARI | ITALIAN NAVY | FLOATING DOCK | 105 | 1990 |
| CANT. NAV. GIACALONE | ITALIAN NAVY | OCEAN GOING TUG | 65-66-67 | 1991 |
| CANT. NAV. GIACALONE | ITALIAN NAVY | OCEAN GOING TUG | 82-83-84-85-86-87-88 | 1992 |
| CANT. NAV. GIACALONE | ITALIAN NAVY | FLOATING DOCK | 89-90-91 | 1996 |
| CANT. NAV. MEGARIDE | ITALIAN COAST GUARD | SUPPLY VESSEL | C0951 | 2011 |
| CANT. NAV. MORINI | ITALIAN NAVY | PATROL VESSEL | 218-219-220-221-222-223 | 1985 |
| CANT. NAV. RIUNITI | PERUVIAN NAVY | FRIGATE | | 1977 |
| CANT. NAV. RIUNITI | LIBYAN NAVY | CORVETTE | 1161-1162-1163-1164 | 1980 |
| CANT. NAV. RIUNITI | ITALIAN NAVY | FRIGATE | 300-301-302-303 | 1980 |
| CANT. NAV. RIUNITI | VENEZUELAN NAVY | FRIGATE | 304-305-306-307 | 1980 |
| CANT. NAV. RIUNITI | VENEZUELAN NAVY | FRIGATE | 851-852-853-854-855-856 | 1981 |
| CANT. NAV. RIUNITI | ECUADORIAN NAVY | FRIGATE | 888-889-890-891-892-893 | 1981 |
| CANT. NAV. RIUNITI | ROYAL MALAYSIAN NAVY | CORVETTE | 907-908-909-910 | 1981 |
| CANT. NAV. RIUNITI | ITALIAN NAVY | FRIGATE | 911-912 | 1981 |
| CANT. NAV. RIUNITI | ITALIAN NAVY | FRIGATE | 875-876-877-878-879-880 | 1982 |
| CANT. NAV. RIUNITI | ITALIAN NAVY | FRIGATE | 923-924-925-926 | 1982 |
| CANT. NAV. RIUNITI | ITALIAN NAVY | CORVETTE | 115 | 2000 |
| CANT. NAV. RODRIQUEZ | ITALIAN NAVY | PATROL BOAT | 11 UNITS | 2003 |
| CHANTIERS DE L'ATLANTIQUE | FRENCH NAVY | HELICOPTER CARRIER | I 32 (MISTRAL) - J 32 (TONNERE) | 2002 |
| CHANTIERS DE L'ATLANTIQUE | FRENCH NAVY | LANDING HELICOPTER DOCK | G 33 (DIXMUDE) | 2009 |
| CHANTIERS DE L'ATLANTIQUE | RUSSIAN NAVY | LANDING HELICOPTER DOCK | M 33 - N 33 | 2011 |
| CHANTIERS DE L'ATLANTIQUE | OCCAR - FRENCH NAVY | LOGISTIC SUPPORT SHIP | C35-D35-E35-F35 | 2020 |

| SHIPYARD | SHIP OWNER | VESSEL TYPE | HULL NUMBER | YEAR |
|---------------------------|------------------------|--------------------------|---------------------------------|------|
| C.R.N. ANCONA | ITALIAN NAVY | PATROL BOAT | 101-102-103-104 | 1989 |
| C.R.N. ANCONA | ITALIAN NAVY | PATROL BOAT | 110 | 1997 |
| DAMEN SHIPYARD | ROYAL THAI NAVY | HYDROGRAPHIC VESSEL | HYDRO THAI | 2006 |
| DAMEN SCHELDE NAVAL SHIP. | ROYAL NETHERLANDS NAVY | JOINT SUPPORT SHIP | 412 | 2010 |
| DAMEN SCHELDE NAVAL SHIP. | INDONESIAN NAVY | FRIGATE | 414 | 2013 |
| DAMEN SCHELDE NAVAL SHIP. | INDONESIAN NAVY | FRIGATE | 415 | 2014 |
| DAMEN SCHELDE NAVAL SHIP. | MEXICAN NAVY | CORVETTE | 419 | 2017 |
| DAMEN SCHELDE NAVAL SHIP. | NIGERIAN NAVY | CORVETTE | 420 | 2019 |
| DAMEN SCHELDE NAVAL SHIP. | ROYAL NETHERLANDS NAVY | HOV | 391-392 | 2002 |
| DAMEN SCHELDE NAVAL SHIP. | SOUTH AFRICAN NAVY | OFFSHORE PATROL VESSEL | Z 0059 | 2003 |
| DAMEN SCHELDE NAVAL SHIP. | INDONESIAN NAVY | CORVETTE | 00397-00398 | 2004 |
| DAMEN SCHELDE NAVAL SHIP. | INDONESIAN NAVY | CORVETTE | 00399-00400 | 2006 |
| DAMEN SCHELDE NAVAL SHIP. | ROYAL MOROCCAN NAVY | FRIGATE | 405-406-407 | 2008 |
| DCNS | FRENCH NAVY | HELICOPTER CARRIER | I 32 (MISTRAL) - J 32 (TONNERE) | 2003 |
| DCNS | FRENCH NAVY | FRIGATE | HORIZON (2 UNITS) | 2003 |
| DCNS | FRENCH NAVY | OPV CORVETTE | L'ADROIT | 2010 |
| E.N. BAZAN | SPANISH NAVY | MINEHUNTER | 209-210-211-212 | 1995 |
| ELEFSIS SHIPYARD | HELLENIC NAVY | TANKER | 10061 | 2001 |
| FINCANTIERI | ITALIAN NAVY | RESCUE VESSEL M. PURPOSE | 929 | 1987 |
| FINCANTIERI | ITALIAN NAVY | CORVETTE | 5850-5851-5852-5853 | 1987 |
| FINCANTIERI | ITALIAN NAVY | RESCUE VESSEL M. PURPOSE | 5825 | 1988 |
| FINCANTIERI | ITALIAN NAVY | PATROL BOAT | 5846-5847-5848-5849 | 1990 |
| FINCANTIERI | ITALIAN NAVY | DESTROYER | 5844-5845 | 1990 |
| FINCANTIERI | ITALIAN NAVY | SUBMARINE | 5878-5879 | 1991 |
| FINCANTIERI | ITALIAN NAVY | RESCUE VESSEL M.PURPOSE | 5932 | 1992 |
| FINCANTIERI | REPUBLIC OF CHINA NAVY | OCEANOGRAPHIC | 5942 | 1993 |
| FINCANTIERI | ITALIAN NAVY | TANKER | 5957 | 1995 |
| FINCANTIERI | ITALIAN COAST GUARD | PATROL BOAT | 5996 | 1996 |

| SHIPYARD | SHIP OWNER | VESSEL TYPE | HULL NUMBER | YEAR |
|--------------------------|----------------------|-------------------------|-------------------------------------|------|
| FINCANTIERI | ITALIAN NAVY | PATROL BOAT | 6061-6062-6063-6064 | 1999 |
| FINCANTIERI | ITALIAN NAVY | OCEANOGRAPHIC | 6080 | 2000 |
| FINCANTIERI | ITALIAN NAVY | PATROL BOAT | 6088-6089 | 2000 |
| FINCANTIERI | ITALIAN NAVY | PATROL BOAT | 6083-6084-6085-6105-6107 | 2000 |
| FINCANTIERI | ITALIAN NAVY | AIRCRAFT CARRIER | 6090 - CAVOUR | 2002 |
| FINCANTIERI | ITALIAN NAVY | FRIGATE | 6108-6109 - HORIZON | 2003 |
| FINCANTIERI | N.I.O.T. | OCEAN RESEARCH VESSEL | 6147 | 2006 |
| FINCANTIERI | ITALIAN NAVY | FRIGATE | 6145-6146 - FREMM | 2007 |
| FINCANTIERI | IRAQI NAVY | PATROL BOAT | 6156-6157-6158-6159 - SAETTIA | 2007 |
| FINCANTIERI | TURKISH COAST GUARD | SEARCH & RESCUE VESSEL | 6182-6183-6184-6185 | 2009 |
| FINCANTIERI | ITALIAN NAVY | FRIGATE | 6209-6210-6211-6212 - FREMM | 2009 |
| FINCANTIERI | U.A.E. NAVY | CORVETTE | 6220 | 2009 |
| FINCANTIERI | U.A.E. NAVY | PATROL VESSEL | 6221-6222 | 2010 |
| FINCANTIERI | ITALIAN COAST GUARD | OPV | 6233-6234 | 2011 |
| FINCANTIERI | ALGERIAN NAVY | PURPOSE RESCUE VESSEL | 6235 | 2011 |
| FINCANTIERI | ITALIAN NAVY | FRIGATE | 6247-6248 - FREMM | 2014 |
| FINCANTIERI | ITALIAN NAVY | LOGISTIC SUPPORT SHIP | 6259 - LSS | 2015 |
| FINCANTIERI | ITALIAN NAVY | FRIGATE | 6276 - FREMM | 2015 |
| FINCANTIERI | ITALIAN NAVY | FRIGATE | 6277 - FREMM | 2016 |
| FINCANTIERI | ITALIAN NAVY | PATROL VESSEL | 6261 - PPA | 2016 |
| FINCANTIERI | ITALIAN NAVY | PATROL VESSEL | 6262-6263-6264-6265-6266-6267 - PPA | 2017 |
| FINCANTIERI | ITALIAN NAVY | LANDING HELICOPTER DOCK | 6260 - LHD | 2017 |
| FINCANTIERI | QATARI NAVY | MULTIROLE CORVETTE | 6291-6292-6293-6294 | 2018 |
| F.LLI SIGNALI | ITALIAN NAVY | TANKER | 39-41 | 1986 |
| HYUNDAI HEAVY INDUSTRIES | VENEZUELAN NAVY | LOGISTIC SUPPORT SHIP | P093 | 1999 |
| INTERMARINE | ITALIAN NAVY | MINEHUNTER | 4 UNITS | 1983 |
| INTERMARINE | ROYAL MALAYSIAN NAVY | MINEHUNTER | 4 UNITS | 1983 |
| INTERMARINE | NIGERIAN NAVY | MINEHUNTER | 2 UNITS | 1985 |
| INTERMARINE | ITALIAN NAVY | MINEHUNTER | 8 UNITS | 1989 |

| SHIPYARD | SHIP OWNER | VESSEL TYPE | HULL NUMBER | YEAR |
|-----------------------------|------------------------|-------------------------|-----------------------------------|------|
| INTERMARINE | ROYAL THAI NAVY | MINEHUNTER | 2 UNITS | 1997 |
| INTERMARINE | ITALIAN NAVY | RESEARCH VESSEL | 2 UNITS | 1999 |
| INTERMARINE | FINNISH NAVY | MINEHUNTER | MCMV 2010 | 2007 |
| INTERMARINE | ALGERIAN NAVY | MINEHUNTER | CDMA | 2014 |
| INTERMARINE | REPUBLIC OF CHINA NAVY | MINEHUNTER | PROJECT 242 | 2016 |
| INTERMARINE | ALGERIAN NAVY | MINEHUNTER | CDMA 252 | 2017 |
| INTERMARINE | ALGERIAN NAVY | MINEHUNTER | 256 | 2019 |
| ITALCANTIERI | ITALIAN NAVY | AIRCRAFT CARRIER | 4367 - GARIBALDI | 1982 |
| IZAR S.A. | SPANISH NAVY | MINEHUNTER | 224-225 | 2002 |
| KHULNA SHIPYARD | BANGLADESH NAVY | LANDING CRAFT UTILITY | | 2018 |
| NAVANTIA | SPANISH NAVY | SUBMARINE | S 81-S 82-S 83-S 84 | 2006 |
| PT PAL | INDONESIAN NAVY | FRIGATE | 362 | 2017 |
| PT PAL | INDONESIAN NAVY | LANDING CRAFT UTILITY | JW1 W000298 - JW2 W000299 | 2017 |
| PT PAL | INDONESIAN NAVY | KCR 60 FPB | W000300-W000301 | 2019 |
| PT PAL | INDONESIAN NAVY | KBRS 124M HOSPITAL SHIP | W000302 | 2019 |
| PT PAL | INDONESIAN NAVY | KBRS 124M HOSPITAL SHIP | W000303 | 2020 |
| REMONTOWA SHIPBUILDING S.A. | POLISH NAVY | MINEHUNTER | N. 258 / 0620-1 (KORMORAN II) | 2013 |
| REMONTOWA SHIPBUILDING S.A. | POLISH NAVY | TUG | B860/1,2,3,4,5,6 | 2017 |
| SOCARENAM | BELGIUM NAVY | PATROL VESSEL | 248-249 | 2014 |
| ST MARINE | ROYAL NAVY OF OMAN | OFFSHORE PATROL VESSEL | BO660-661-662-663 | 2012 |
| ST MARINE | SINGAPORE NAVY | LITTORAL MISSION VESSEL | BO668-669-670-671-672-673-674-675 | 2014 |
| UMOE MANDAL SHIPYARD | ROYAL NORWEGIAN NAVY | MINEHUNTER | M350-351-352-353-354-355-356 | 2006 |

PRODUCTION RANGE FOR MARINE AND NAVY

CENTRIFUGAL PUMPS

Centrifugal pumps according to EN 733 standards
 Horizontal end suction pumps
 Vertical in line pumps
 Vertical in line double suction pumps
 Recessed impeller torque flow pumps
 Vertically suspended line-shaft centrifugal pumps
 Chemical pumps according to ISO 2858 - 5199
 Diathermic oil circulation pumps

Multistage high pressure pumps
 Side channel pumps
 Fire fighting Naval pumps (according to UMM1008 standards)
 Portable diesel engine fire pumps

POSITIVE DISPLACEMENT PUMPS

Hollow oscillating disk pumps
 Gear pumps
 Piston pumps

MARINE AND NAVAL APPLICATIONS

HULL SERVICES

Main Cooling
 Ballast & Bilge Services
 Deck Water Sealing
 Sludge
 Auxiliaries Cooling
 Sewage Transfer

ENGINE SERVICES

Main Engine Lube Oil System
 Lube Oil/ Fuel Oil Transfer Applications
 Waste Oil Transfer
 Boiler Feed
 Economiser Circulation

GENERAL SERVICES

Fire Fighting & General Services
 Fresh Water System
 HT/LT Circulation
 Grey/Black Water Handling
 AC Chilled Water Circulation
 Water Chilling
 Scrubber system
 Ballast water treatment

| |
|-----------------------|
| QUALITY SYSTEM |
|-----------------------|

Quality System according to ISO 9001:2008, ISO 14001:2004 and NATO AQAP 2110

Pumps designed following NATO Military Standards (shock proof, noise proof, vibrations proof, non magnetic executions)

CLASSIFICATION SOCIETIES

Registro Italiano Navale, American Bureau of Shipping, Lloyd's Register, Bureau Veritas, Det Norske Veritas, Germanischer Lloyd, Nippon Kaiji Kyokay, Russina Maritime Register of Shipping

ITALIAN MILITARY STANDARDS

| CODE | DESCRIPTION | EDITION |
|----------------------------|--|---------|
| NAV-30-A001 | SHOCK TEST PROCEDURE FOR SHIPBOARD EQUIPMENT | JAN 86 |
| NAV-30-A002 | MECHANICAL VIBRATIONS OF SHIPBOARD EQUIPMENT | JAN 72 |
| NAV-05-A-163 | FLEXIBLE COUPLING CERSTIFICATE | 1991 |
| NAV-80-9999-0015-14-00B000 | EQUIPMENT AND SYSTEM ARRANGEMENT | JUL 92 |
| NT 60612 | STRUCTURBORNE VIBRATORY ACCELERATION MEASUREMENTS AND ACCEPTANCE CRITERIA OF SHIPBOARD EQUIPMENT | JUN 90 |
| MM-60612 | STRUCTURBORNE VIBRATORY ACCELERATION MEASUREMENTS AND ACCEPTANCE CRITERIA OF ROTATING COMPONENTS | |
| UMM 1008 | GENERAL TECHNICAL CHARACTERISTICS FOR FIRE FIGHTING PUMPS | |

INTERNATIONAL MILITARY STANDARDS

| CODE | DESCRIPTION | EDITION |
|----------------------|---|----------------|
| MIL-STD-129L | MILITARY STANDARD MARKING FOR SHIPMENT AND STORAGE | 15/10/1990 |
| MIL-STD-167-1 | MILITARY STANDARD – MECHANICAL VIBRATIONS OF SHIPBORAD EQUIPMENT (TYPE I - ENVIRONMENTAL AND TYPE II - EXCITED) | 01/05/1974 |
| MIL STD-461D | MILITARY STANDARD – REQUIREMENTS FOR THE CONTROL OF ELETTRROMAGNETIC INTERFERENCE EMISSIONS AND SUSCEPTIBILITY | 11/01/1993 |
| MIL-STD-740B | MILITARY STANDARD – AIRBORNE AND STRUCTUREBORNE NOISE MEASUREMENTS AND ACCEPTANCE CRITERIA OF SHIPBOARD EQUIPMENT | 13/01/1965 |
| MIL-STD-740-1 | MILITARY STANDARD – AIRBORNESOUND MEASUREMENTS AND ACCEPTANCE CRITERIA OF SHIPBOARD EQUIPMENT | 30/12/1986 |
| MIL-STD-740-2 | MILITARY STANDARD – STRUCTUREBORNE VIBRATORY ACCELERATION MEASUREMENTS AND ACCEPTANCE CRITERIA OF SHIPBOARD EQUIPMENT | 30/12/1986 |
| MIL-STD-777-E(SH) | MILITARY STANDARD – SCHEDULE OF PIPING, VALVES, FITTINGS, AND ASSOCIATED PIPING COMPONENTS FOR NAVAL SURFACE SHIPS | 07/02/1986 |
| MIL-STD-794E | MILITARY STANDARD - PARTS AND EQUIPMENT, PROCEDURES OF PACKAGING AND PACKING OF | 16/07/1982 |
| MIL-STD-2073-1B | MILITARY STANDARD - DOD MATERIEL PROCEDURES FOR DEVELOPMENT AND APPLICATION OF PACKAGING REQUIREMENTS | 21/06/1991 |
| MIL-S-901D (NAVY) | MILITARY SPECIFICATION – SHOCK TEST, H.I. SHIPBOARD MACHINERY, EQUIPMENT, AND SYSTEM REQUIREMENTS | 17/03/1989 |
| MIL-B-117F | MILITARY SPECIFICATION – BAGS, SLEEVES AND TUBING | 30/06/1988 |
| MIL-B-117F (AMEND.1) | MILITARY SPECIFICATION – BAGS, SLEEVES AND TUBING | 23/04/1990 |
| MIL-B-131H | MILITARY SPECIFICATION – BARRIER MATERIALS,WATERVAPORPROOF, GREASEPROOF, FLEXIBLE, HEAT-SEALABLE | 17/02/1987 |
| MIL-E-17555H | MILITARY SPECIFICATION – ELECTRONIC AND ELECTRICAL EQUIPMENT, ACCESSORIES, AND PROVISIONED ITEMS (REPAIR PARTS): PACKAGING OF | 15/11/1984 |
| MIL-P-116J | MILITARY SPECIFICATION – PRESERVATION, | |
| MIL-P-116J-Amend. 1 | MILITARY SPECIFICATION – PRESERVATION, | |
| MIL-P-197G | MILITARY SPECIFICATION – PACKAGING OF ANTI-FRICTION BEARINGS, ASSOCIATED PARTS AND SUBASSEMBLIES | |
| MIL-P-3420F | MILITARY SPECIFICATION – PACKAGING MATERIALS, VOLATILE CORROSION INHIBITOR, OPAQUE | |

ANTI-SHOCK, ANTI-VIBRATION CERTIFICATED PUMPS ACCORDING TO NAVAL STANDARDS

| SHOCK TEST Certificate Number | VIBRATION TEST Certificate Number | PUMPS | SHIPYARD | VESSEL |
|----------------------------------|--------------------------------------|----------|--------------------|---|
| 83/58.U - 04.07.83 | 86/63.V - 04.07.83 | 101 G2 | INTERMARINE | "LERICI" MINEHUNTER |
| 83/58.U - 04.07.83 | 83/63.V - 04.07.83 | 101 G2 | INTERMARINE | "LERICI" MINEHUNTER |
| 85/121.U - 26.11.85 | 85/70.V - 30.09.85 | 101 G2 | FINCANTIERI | "MINERVA" CORVETTE |
| 83/69.U - 04.07.83 | 83/74.V - 04.07.83 | BT 201 | INTERMARINE | "LERICI" MINEHUNTER |
| 83/61.U - 04.07.83 | 83/66.V - 04.07.83 | BT 251 K | INTERMARINE | "LERICI" MINEHUNTER |
| 83/59.U - 04.07.83 | 83/64.V - 04.07.83 | BT 301 | INTERMARINE | "LERICI" MINEHUNTER |
| 34 - 13.06.77 | | BT 302 | CANT.NAV.RIUNITI | CLASS "LUPO" FRIGATE |
| 118 A/S - 31.07.81 | | BT 402 K | CANT.NAV.RIUNITI | CLASS "LUPO" FRIGATE |
| | 82/7 V - 06.02.82 | BT 402 K | CANT.NAV.RIUNITI | CLASS "MAESTRALE" FRIGATE |
| 82/24 U. 06.02.82 | 82/8 V - 06.02.82 | BT 501 | ITALCANTIERI | "GARIBALDI" CRUISER HELICOPTER CARRIER |
| 90/7.U - 19.01.90 | 90/5.V - 19.01.90 | BT 503 | FINCANTIERI | CLASS "ANIMOSO" SUPERHUNTER |
| 85/30.U - 07.05.85 | | CS 22 | FINCANTIERI | "MINERVA" CORVETTE |
| | 82/6 V - 06.02.82 | E40R | CANT.NAV.RIUNITI | CLASS "MAESTRALE" FRIGATE |
| 82/6 U - 06.02.82 | 82/9 V - 06.02.82 | H341 S | ITALCANTIERI | "GARIBALDI" CRUISER HELICOPTER CARRIER |
| | 82/5 V - 06.02.82 | H344SS | CANT.NAV.RIUNITI | CLASS "MAESTRALE" FRIGATE |
| 88/111.U - 23.12.88 | 88/87.V - 23.12.88 | H344SS | FINCANTIERI | CLASS "ANIMOSO" SUPERHUNTER |
| 83/67.U - 04.07.83 | 83/72.V - 04.07.83 | IN 100 | INTERMARINE | "LERICI" MINEHUNTER |
| 83/154.U - 06.12..83 | 83/121.V - 04.07.83 | IN 200 | SILVANI ANTINCENDI | "GARIBALDI" CRUISER HELICOPTER CARRIER |

| SHOCK TEST Certificate Number | VIBRATION TEST Certificate Number | PUMPS | SHIPYARD | VESSEL |
|-----------------------------------|--------------------------------------|--------------|------------------|---|
| 90/79.U - 24.10.90 | 90/70.V - 24.10.90 | IN 300 | FINCANTIERI | CLASS "ANIMOSO" SUPERHUNTER |
| 83/68.U - 04.07.83 | 83/73.V - 04.07.83 | IN 40 | INTERMARINE | "LERICI" MINEHUNTER |
| 90/42.U - 18.06.90 | 90/35.V - 18.06.90 | MCA 100-162M | DAVIDSON | "LERICI" MINEHUNTER |
| | 82/18 V - 10.02.82 | MCV 65 | CANT.NAV.RIUNITI | CLASS "MAESTRALE" FRIGATE |
| | 88/85.V - 23.12.88 | MM 100/125 | FINCANTIERI | CLASS "ANIMOSO" SUPERHUNTER |
| Homologated according to UMM 1008 | MM 100/125 | | | |
| 85/27.U - 07.05.85 | | MU 100-200V | A.T.I.S.A. | "MINERVA" CORVETTE |
| 82/19 U - 06.02.82 | 82/12V - 06.02.82 | MU 125-250 | ITALCANTIERI | "GARIBALDI" CRUISER HELICOPTER CARRIER |
| 88/95.U - 12.12.88 | 88/78.V - 12.12.88 | MU 125-250 | AERIMPIANTI | CLASS "ANIMOSO" SUPERHUNTER |
| 88/110.U - 23.12.88 | 88/86.V - 23.12.88 | MU 32-160M | FINCANTIERI | CLASS "ANIMOSO" SUPERHUNTER |
| 82/15 U - 06.02.82 | 82/14V - 06.02.82 | MU 32-200 | SCAM SPA | "GARIBALDI" CRUISER HELICOPTER CARRIER |
| 83/64.U - 04.07.83 | 83/69.V - 04.07.83 | MU 32-200 | INTERMARINE | "LERICI" MINEHUNTER |
| 80/25.U - 26.03.80 | | MU 40-250 | NAVALCOSTARMI | "LERICI" MINEHUNTER |
| 82/90.U - 05.07.82 | 82/63.V - 05.07.82 | MU 40-250 | ITALCANTIERI | "GARIBALDI" CRUISER HELICOPTER CARRIER |
| 83/60.U - 04.07.83 | 83/65.V - 04.07.83 | MU 40-250 | INTERMARINE | "LERICI" MINEHUNTER |
| 83/63.U - 04.07.83 | 83/68.V - 04.07.83 | MU 40-250 | INTERMARINE | "LERICI" MINEHUNTER |
| 83/65.U - 04.07.83 | 83/70.V - 04.07.83 | MU 40-250 | INTERMARINE | "LERICI" MINEHUNTER |
| 85/29.U - 07.05.85 | | MU 40-250 | A.T.I.S.A. | "MINERVA" CORVETTE |
| 83/62.U - 04.07.83 | 83/67V. - 04.07.83 | MU 40-250 | INTERMARINE | "LERICI" MINEHUNTER |
| 82/202.U - 16.12.82 | 82/117.V - 16.12.82 | MU 40-250A | ITALCANTIERI | "GARIBALDI" CRUISER HELICOPTER CARRIER |

| SHOCK TEST Certificate Number | VIBRATION TEST Certificate Number | PUMPS | SHIPYARD | VESSEL |
|----------------------------------|--------------------------------------|-------------|---------------|---|
| 88/92.U - 12.12.88 | 88/75.V - 12.12.88 | MU 50-160 M | INSTEAM | CLASS "ANIMOSO" SUPERHUNTER |
| 80/24.U - 25.03.80 | | MU 50-250 | NAVALCOSTARMI | "LERICI" MINEHUNTER |
| 81/1.U - 19.01.81 | | MU 50-250 | NAVALCOSTARMI | UNIT M.M. |
| 81/2.U - 19.01.81 | 81/1.V - 19.01.81 | MU 50-250 | NAVALCOSTARMI | UNIT M.M. |
| 90/38.U - 07.05.90 | 90/32.V - 07.05.90 | MU 50-250 | INTERMARINE | "LERICI" MINEHUNTER |
| 90/39.U - 07.05.90 | 90/33.V - 07.05.90 | MU 65-200 | INTERMARINE | "LERICI" MINEHUNTER |
| 82/20 U - 06.02.82 | 82/10V - 06.02.82 | MU 65-315 | ITALCANTIERI | "GARIBALDI" CRUISER HELICOPTER CARRIER |
| 88/93.U - 12.12.88 | 88/76.V - 12.12.88 | MU 65-315 | AERIMPIANTI | CLASS "ANIMOSO" SUPERHUNTER |
| 88/112.U - 23.12.88 | 88/88.V - 23.12.88 | MU 65-315 | FINCANTIERI | CLASS "ANIMOSO" SUPERHUNTER |
| 89/25.U - 25.05.89 | | MU 65-315 A | FINCANTIERI | CLASS "ANIMOSO" SUPERHUNTER |
| 90/8.U - 19.01.90 | 90/6.V - 19.01.90 | MU 65-315 A | FINCANTIERI | CLASS "ANIMOSO" SUPERHUNTER |
| 90/6.U - 19.01.90 | 90/4.V - 19.01.90 | MU 65-315 M | FINCANTIERI | CLASS "ANIMOSO" SUPERHUNTER |
| 82/17 U - 06.02.82. | 82/13V - 06.02.82. | MU 80-200 | SCAM | "GARIBALDI" CRUISER HELICOPTER CARRIER |
| 83/66.U - 04.07.83 | 83/71.V - 04.07.83 | MU 80-200 | INTERMARINE | "LERICI" MINEHUNTER |
| 85/28.U - 07.05.85 | | MU 80-250 | A.T.I.S.A. | "MINERVA" CORVETTE |
| 148 - 27.05.85 | | MU 80-250 V | FINCANTIERI | "MINERVA" CORVETTE |
| 82/18 U - 06.02.82 | 82/11V - 06.02.82 | MU 80-315 | ITALCANTIERI | "GARIBALDI" CRUISER HELICOPTER CARRIER |
| 82/16 U - 06.02.82 | 82/15V - 06.02.82 | MU 80-315 | SCAM SPA | "GARIBALDI" CRUISER HELICOPTER CARRIER |
| 88/94.U - 12.12.88 | 88/77.V - 12.12.88 | MU 80-315 | AERIMPIANTI | CLASS "ANIMOSO" SUPERHUNTER |

| SHOCK TEST Certificate Number | VIBRATION TEST Certificate Number | PUMPS | SHIPYARD | VESSEL |
|----------------------------------|--------------------------------------|----------------|-------------|--------------------------------|
| 90/4.U - 16.01.90 | 90/2.V - 16.01.90 | SMBAR210R40 | FINCANTIERI | CLASS "ANIMOSO" SUPERHUNTER |
| 91/10.U – 15.2.91 | 91/12.V – 15.2.91 | MU 40-200 S | FINCANTIERI | SUBMARINE "LONGOBARDO" |
| 91/11.U – 15.2.91 | 91/13.V – 15.2.91 | MU 40-250A | FINCANTIERI | SUBMARINE "LONGOBARDO" |
| 91/12.U – 15.2.91 | 91/14.V – 15.22.91 | MU 65-200S | FINCANTIERI | SUBMARINE "LONGOBARDO" |
| 91/13.U – 18.2.91 | 91/15.V – 18.2.91 | IN 15 | FINCANTIERI | SUBMARINE "LONGOBARDO" |
| 91/30.U – 20.3.91 | 91/33.V – 20.3.91 | BT 201 | FINCANTIERI | CLASS "ANIMOSO" SUPERHUNTER |
| 92/2.U – 22.1.92 | 92/2.V – 22.1.92 | BT 202 | FINCANTIERI | CLASS "ANIMOSO" SUPERHUNTER |
| 92/3.U – 24.1.92 | 92/3.V – 24.1.92 | MU 32-200 M | FINCANTIERI | SUBMARINE "LONGOBARDO" |
| 92/7.U – 25.3.92 | 92/7.V – 25.3.92 | MU 32-200 LM | FINCANTIERI | SUBMARINE CLASS "SAURO" |
| 92/6.U – 25.3.92 | 92/6.V – 25.3.92 | MU 32-160 LM | FINCANTIERI | SUBMARINE CLASS "SAURO" |
| 92/8.U – 25.3.92 | 92/8.V – 25.3.92 | ACE 038N1 IRBO | FINCANTIERI | SUBMARINE CLASS "SAURO" |
| 01/03 | 01/03 | ACG060K6 NVBO | FINCANTIERI | AIRCRAFT CARRIER "CAVOUR" |
| 03/03 | 02/03 | V50-3ST | FINCANTIERI | AIRCRAFT CARRIER "CAVOUR" |
| 07/03 | 05/03 | ACG032N3 NVBP | FINCANTIERI | AIRCRAFT CARRIER "CAVOUR" |
| 13/03 | 08/03 | MU 80-250M | FINCANTIERI | AIRCRAFT CARRIER "CAVOUR" |
| 20/03 | 11/03 | MU 125-250M | FINCANTIERI | AIRCRAFT CARRIER "CAVOUR" |
| 33/05 | 09/05 | MU 40-315M | FINCANTIERI | AIRCRAFT CARRIER "CAVOUR" |
| 16/04 | 23/3 | MU 125-250 | FINCANTIERI | HORIZON FRIGATES |

| SHOCK TEST Certificate Number | VIBRATION TEST Certificate Number | PUMPS | SHIPYARD | VESSEL |
|----------------------------------|--------------------------------------|----------------|-------------|------------------|
| 15/04 | 20/3 | MU 50-250 | FINCANTIERI | HORIZON FRIGATES |
| 33/3 | 19/3 | MU 100-315 | FINCANTIERI | HORIZON FRIGATES |
| 32/3 | 18/3 | IN 100 NDB | FINCANTIERI | HORIZON FRIGATES |
| 31/3 | 17/3 | ACF100N4 NVBO | FINCANTIERI | HORIZON FRIGATES |
| 20/04 | 09/4 | ACG045K7 NTBP | FINCANTIERI | HORIZON FRIGATES |
| 24/05 | 08/05 | MU 40-250 | FINCANTIERI | HORIZON FRIGATES |
| 05/07 | 03/07 | MU 65-200 LMS | NAVANTIA | S-80 SUBMARINES |
| 12/07 | 10/07 | AP 40 RA | NAVANTIA | S-80 SUBMARINES |
| 11/07 | 07/07 | BTA 501 | NAVANTIA | S-80 SUBMARINES |
| 15/07 | 15/07 | 50G5 VE | NAVANTIA | S-80 SUBMARINES |
| 14/07 | 11/07 | BT 201 V | NAVANTIA | S-80 SUBMARINES |
| 13/07 | 08/07 | MU 25-160 LM | NAVANTIA | S-80 SUBMARINES |
| 16/07 | 09/07 | INML 15 | NAVANTIA | S-80 SUBMARINES |
| 02/07 | 02/07 | MU 65-200 VMS | NAVANTIA | S-80 SUBMARINES |
| | 02/08 | ACD 025L6 NTBP | NAVANTIA | S-80 SUBMARINES |
| | 01/08 | INML 50 | NAVANTIA | S-80 SUBMARINES |

| SHOCK TEST Certificate Number | VIBRATION TEST Certificate Number | PUMPS | SHIPYARD | VESSEL |
|----------------------------------|--------------------------------------|-----------------|-------------|----------------------------|
| 6/11 | 1/11 | MU 50-160 LMBS | NAVANTIA | S-80 SUBMARINES |
| 5/11 | 2/11 | MU 50-250 LMB | NAVANTIA | S-80 SUBMARINES |
| 7/11 | 3/11 | IN14ND / IN10ND | NAVANTIA | S-80 SUBMARINES |
| 09/08 | 05/08 | BT 302 | INTERMARINE | MINEHUNTER FINNISH NAVY |
| 01/09 | 7/09 | IN 70 | INTERMARINE | MINEHUNTER FINNISH NAVY |
| 03/09 | 2/09 | MCA 32-200 M | INTERMARINE | MINEHUNTER FINNISH NAVY |
| 14/09 | 5/09 | BT 201 | INTERMARINE | MINEHUNTER FINNISH NAVY |
| 22/09 | 4/09 | MU 50-250 MA | INTERMARINE | MINEHUNTER FINNISH NAVY |
| 36/09 | 11/09 | IN 150 | INTERMARINE | MINEHUNTER FINNISH NAVY |
| 34/09 | 10/09 | MU 32-250 M | INTERMARINE | MINEHUNTER FINNISH NAVY |
| 1/10 | 9/09 | MU 50-315 M | INTERMARINE | MINEHUNTER FINNISH NAVY |
| 35/09 | 12-set | P 50 | INTERMARINE | MINEHUNTER FINNISH NAVY |
| 03/10 | 2/10 | CN 65-40-315 M | INTERMARINE | MINEHUNTER FINNISH NAVY |
| 09/07 | | MU 100-250 | FINCANTIERI | FREMM FRIGATES |
| 10/08 | | MU 50-160 M | FINCANTIERI | FREMM FRIGATES |
| 14/08 | | MU 100-315 | FINCANTIERI | FREMM FRIGATES |
| 1/09 | | MU 125-500 | FINCANTIERI | FREMM FRIGATES |

| SHOCK TEST Certificate Number | VIBRATION TEST Certificate Number | PUMPS | SHIPYARD | VESSEL |
|----------------------------------|--------------------------------------|---------------|-------------------------------|-----------------------------|
| 06/10 | | MU 65-315 | FINCANTIERI | FREMM FRIGATES |
| 09/10 | | MU 100-250 | FINCANTIERI | FREMM FRIGATES |
| 10/10 | | MU 50-160 LBE | FINCANTIERI | FREMM FRIGATES |
| 12/10 | | MU 40-250 | FINCANTIERI | FREMM FRIGATES |
| 15/11 | 5/11 | BT 312 | INTERMARINE | MINEHUNTER ITALIAN NAVY |
| 20/13 | 20/13 | MU 50-200 LMB | ISOTTA FRASCISHINI MOTORI SPA | MINEHUNTER KOREA |
| 20/2015 | 17/2015 | MU 25-160 M | INTERMARINE | MINEHUNTER ALGERIAN NAVY |
| 27/2015 | 26/2015 | MU 50-250 M | INTERMARINE | MINEHUNTER ALGERIAN NAVY |
| 22/2015 | 19/2015 | MU 65-250 M | INTERMARINE | MINEHUNTER ALGERIAN NAVY |
| 21/2015 | 18/2015 | MU 32-200 M | INTERMARINE | MINEHUNTER ALGERIAN NAVY |
| | 16/2015 | MU 25-200 M | INTERMARINE | MINEHUNTER ALGERIAN NAVY |
| | 23/2015 | BT 313 | INTERMARINE | MINEHUNTER ALGERIAN NAVY |
| 101/2017 | 100/2017 | MU 50-200 M | INTERMARINE | MINEHUNTER TAIWAN NAVY |
| 106/2017 | | MU 25-200 M | INTERMARINE | MINEHUNTER TAIWAN NAVY |
| 107/2017 | | IN 70 | INTERMARINE | MINEHUNTER TAIWAN NAVY |
| 108/2017 | | BT 313 | INTERMARINE | MINEHUNTER TAIWAN NAVY |
| 112/2017 | | MU 50-250 M | FINCANTIERI | PPA VESSEL ITALIAN NAVY |
| 113/2017 | | MU 125-250 | FINCANTIERI | PPA VESSEL ITALIAN NAVY |

MATERIALS

CAST IRON (GREY CAST IRON G25, NODULAR CAST IRON GS400, NI-RESIST CAST IRON)

BRONZE (TIN BRONZE B10 AND BZN4, NICKEL-ALUMINIUM BRONZE ASTM B148-C95800)

MARTENSITIC STAINLESS STEEL (AISI 410 – 420), AUSTENITIC STAINLESS STEEL (AISI 304, AISI 304 L, AISI 316 L, AISI 317 L)

CARBON STEEL (WCB AND LCB GRADE)

DUPLEX AND SUPERDUPLEX (ASTM A890 GR. 4A, 5A, CD4MCU)

SPECIAL ALLOYS (MONEL, HASTELLOY, ALLOY 20, INCOLOY 825)

| Materials | ASTM | DIN | UNS |
|---------------------|-------------|------------------|---------|
| ALUMINIUM BRONZE | B 148 | Cu Ni Al Bz F 60 | C 95800 |
| MONEL 400 | A494 M-35-1 | 24.365 | N 24135 |
| AISI 316 | A351 – CF8M | 14.408 | J92900 |
| AISI 316L | A351 CF3M | 14.404 | J92800 |
| DUPLEX (2205) | A890 Gr. 4A | 14.462 | J92205 |
| SUPER DUPLEX (2507) | A890 Gr. 5A | 14.469 | J93404 |

Any other material combination can be supplied.

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| ITALIAN NAVY - Vessels References |
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| TYPE | NAME |
|-------------------------------|--|
| AIRCRAFT CARRIER | GARIBALDI, VITTORIO VENETO, CAVOUR |
| LANDING HELICOPTER DOCK - LHD | TRIESTE |
| LOGISTIC SUPPORT SHIP | VULCANO |
| DESTROYER | ARDITO, AUDACE |
| SUPERHUNTER | DURANS DE LA PENNE, MIMBELLI |
| FRIGATE | MAESTRALE, GRECALE, LIBECCIO, SCIROCCO, ALISCO, EURO, ESPERO, ZEFFIRO, LUPO, SAGITTARIO, PERSEO, ORSA |
| FRIGATE (HORIZON CLASS) | ANDREA DORIA, CAIO DUILIO |
| FRIGATE (FREMM CLASS) | BERGAMINI, FASAN, MARGOTTINI, CARABINIERE, ALPINO, RIZZO, MARTINENGO, MARCEGLIA, SCHERGAT, BIANCHI |
| CORVETTE | MINERVA, URANIA, DANAIDE, SFINGE, DRIADE, FENICE, CHIMERA, SIBILLA, ALCIONE, AIRONE |
| MULTIPURPOSE PATROL VESSEL | HULL 6261 - 6262 - 6263 - 6264 - 6265 - 6266 - 6267 |
| PATROL VESSEL | GORGONA, TREMITI, CAPRERA, PANTELLERIA, LIPARI, CAPRI |
| PATROL BOAT | ESPLORATORE, SENTINELLE, VENDETTA, CASSIOPEA, LIBRA, SPICA, VEGA, ARTIGLIERE, AVIERE, BERSAGLIERE, GRANATIERE, |
| | CIGALA FULGOSI, COM.TE BORSINI, COM.TE BETTICA, COM.TE FOSCARI |
| PATROL BOAT (DICIOTTI CLASS) | U. DICIOTTI, DATTILO, FIORILLO, PELUSO, CORSI |
| SUBMARINE | SAURO, FECIA DI COSSATO, LEONARDO DA VINCI, MARCONI, PELOSI, PRINI, LONGOBARDO, GAZZANA |
| MINEHUNTER | LERICI, SAPRI, MILAZZO, VIESTE, GAETA, TERMOLI, ALGHERO, NUMANA, CROTONE, VIAREGGIO, CHIOGGIA, RIMINI |

| TYPE | NAME |
|-----------------------|--|
| WATER TANKER | PIAVE, BASENTO, BRADANO, BRENTA, TIRSO, TICINO, BORMIDA, ETNA |
| IDROCEANIC VESSEL | MAGNAGHI, MIRTO, PIOPPPO |
| RESEARCH VESSEL | ARETUSA, GALATEA |
| PURPOSE RESCUE VESSEL | SAN GIORGIO, SAN MARCO, SAN GIUSTO |
| RESCUE VESSEL | ANTEO, PAOLUCCI, PEDRETTI, MARINO |
| TRAINING VESSEL | AMERIGO VESPUCCI, PALINURO |
| TRAINING VESSEL | ROSSETTI, CARABINIERE, MURENA |
| FLOATING POONTON | HULL 190 |
| OCEAN GOING TUG | HULL 65, HULL 66, HULL 67, HULL 82, HULL 83, HULL 84, HULL 85, HULL 86, HULL 87, HULL 88 |
| FLOATING DOCK | HULL 75, HULL 105, HULL 89, HULL 90, HULL 91 |
| DEEP-SEA PATROL BOAT | SIRIO, ORIONE |

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| PUMPS AND SERVICE DETAILS |
|----------------------------------|

LOGISTIC SUPPORT SHIP - HULL 6259

SHIPYARDS: FINCANTIERI (Italy)

YEAR: 2015

| PUMP TYPE | SERVICE | UNITS |
|---|-------------------------|------------------------------------|
| CARGO - 544 | | |
| HC 300-90/2 N | NATO F-76 Fuel | 4 |
| HC 232-66/2 N | NATO JP5 Kerosene | 2 |
| 50 G3 V | Fresh water | 2 |
| FIRE (fixed diesel engine) - 521 | | |
| MU 40-250 AF | Fire fighting | 2 |
| HYDROPHORE UNIT - 533 | | |
| BT 313 | Fresh water | 2 Modules (Made by 2 e/pumps each) |
| AIR CONDITIONING - 514 | | |
| MU 150-315 LM | Sea water | 4 |
| MU 50-160 LM | Sea water | 1 |
| MU 65-200 M | Boiler feeding | 2 |
| MU 125-250 LM | Chilled water | 2 Modules (Made by 3 e/pumps each) |
| MU 65-250 LM | Emergency sea water | 2 |
| MU 50-200 LM | Emergency chilled water | 2 |
| HUSKY 1050-647109 | Drainage system | 1 |

| PUMP TYPE | SERVICE | UNITS |
|---------------------------|-----------------------------------|------------------------------------|
| HULL SERVICE - 521 | | |
| BT 402 VE | Demineralized water | 2 |
| G3TMK | Sewage transfer | 1 |
| BT 311 | Hot water | 2 Modules (Made by 2 e/pumps each) |
| MU 40-250 LM | F.W Disaster relief | 1 Module (Made by 2 e/pumps each) |
| MU 50-160 M | EPM Cooling F.W. | 2 Modules (Made by 2 e/pumps each) |
| VHC 180 71/2 N | NATO F-76 Fuel transfer | 2 |
| BT 507 | NATO JP5 transfer | 1 |
| HUSKY 1050-647109 | NATO JP5 stripping transfer | 1 |
| HUSKY 1590-DBC-GGG | NATO F-76 Fuel stripping | 1 |
| HUSKY 1590-DBC-311 | NATO JP5 stripping | 2 |
| SWL 5000 G | Bilge | 6 |
| BN 35-6L | Oily sludge tank emptying | 1 |
| G3TMK | Black & grey water tank emptying | 2 |
| BN 5-6 L | Galley water tank emptying | 1 |
| BN 5-6 L | Oil and grease tank emptying | 1 |
| INML 15 B | Boats fuel oil refuelling | 1 |
| MU 125-315 LM | Ballast | 2 Modules (Made by 2 e/pumps each) |
| BN 2-6 L | Chain locker draining | 1 |
| MU 125-315 | HPSW Fire | 4 |
| MU 125-400 M | Hull service central cooling F.W. | 2 |
| MU 125-400 M | Hull service S.W. | 2 |
| HUSKY 1590-DBC-311 | Mezzanine deck oil leakage tank | 2 |

| PUMP TYPE | SERVICE | UNITS |
|--------------------------|------------------------------------|------------------------------------|
| HUSKY 1590-DBD-311 | Ras elevator pit oil leakage | 1 |
| HUSKY 1050-647109 | Motor Drain water | 2 |
| ENGINE ROOM - 201 | | |
| MU 200-315 | Diesel engine S.W. Cooling | 2 Modules (Made by 2 e/pumps each) |
| MU 80-160 M | Diesel generator S.W. Cooling | 2 Modules (Made by 3 e/pumps each) |
| IN 200 NDB E | Diesel generator L.O. transfer | 2 |
| INML 25 B E | Reduction gear L.O. transfer | 2 |
| IN 200 NDB E | Dirty oil transfer | 2 |
| INML 15 B E | Hydraulic oil transfer | 2 |
| HUSKY 1050-647121 | Lube/Hydraulic oil loading | 1 |
| MU 80-160 M | Reduction gear & aux. S.W. Cooling | 2 Modules (Made by 2 e/pumps each) |
| MU 65-400 M | Engine room ventilation S.W. | 2 |
| MU 65-200 LM | NBC S.W. | 2 |

FREMM FRIGATES, 10 UNITS (HULL 6145 - 6146 - 6209 - 6210 - 6211 - 6212 - 6247 - 6248 - 6276 - 6277)

SHIPYARDS: FINCANTIERI (Italy)

YEAR: 2007

For each vessel

| PUMP TYPE | SERVICE | UNITS |
|----------------------|--|------------------------------------|
| FIRE FIGHTING | | |
| MU 125-500 | Fire fighting | 2 Modules (made by 2 e/pumps each) |
| ENGINE ROOM | | |
| MU 100-250 | Circulate S.W. for propulsion lines cooling | 1 Module (made by 2 e/pumps each) |
| MU 40-160 | S.W. For ASFT engine room NBC ventilation collers and fancoils | 1 |
| IN150 NDB | Transfer drained fuel oil | 2 |
| IN100 NDB | RG & FCPP lube oil transfer | 1 |
| IN100 NDB | DG lube oil transfer | 2 |
| IN100 NDB | Dirty oil transfer | 2 |
| IN100 NDB | FCPP lube oil transfer | 1 |
| MU 65-315 | S.W.for engine room NBC ventilation collers and fancoils | 1 |
| MU 50-250 | S.W.for aux. Propulsion engine room fancoils | 1 |
| HULL SERVICE | | |
| MU 65-315 | Hull service sea water | 2 |
| BT 402 | Demineralized water | 1 |
| BT 301 | Hot water circulating | 1 Module (made by 2 e/pumps each) |
| ACF 100N4 NVBO | Fueo oil transfer | 2 |
| HUSKY 1040-D7C-377 | Compressed air portable stripping | 1 |

| PUMP TYPE | SERVICE | UNITS |
|-------------------------|---|------------------------------------|
| INML 15 | Boats fuel oil refilling | 1 |
| P 50 E | Bilge | 5 |
| MCA 80-280 | Black & grey water tank | 1 Module (made by 2 e/pumps each) |
| P 50 E | Sludge | 1 |
| BT 504 | JP5 System | 2 |
| HUSKY 1040-D74-666 | Compressed air portable bilge | 2 |
| MU 40-250 | Sea water Empar | 1 Module (made by 2 e/pumps each) |
| HUSKY 2150-DFC-GGG | Compressed air portable fuel supply (loading) | 1 |
| HUSKY 1040-D7C-GGG | Compressed air portable dirty oil / sludge tank | 3 |
| MU 40-160 | Tank drainage VLS | 1 |
| MU 50-160 LBE | Water mit feeding | 2 |
| BT402 | Fresh water HYDROPHORE UNIT | 1 Module (made by 2 e/pumps each) |
| AIR CONDITIONING | | |
| MU 100-315 | CHILLED WATER | 3 Modules (made by 2 e/pumps each) |
| BT 301 | Drainage water tank & outboard discharge | 4 |

HORIZON FRIGATES, 4 UNITS (HULL 6108-6109 + 2 UNITS)**SHIPYARDS: FINCANTIERI (Italy) - DCNS (France)****YEAR: 2003**

For each vessel:

| PUMP TYPE | SERVICE | UNITS |
|-------------------------|---|--------------|
| ENGINE ROOM | | |
| MU 25-250 | Engine rooms coolers sea water | 2 |
| IN150 NDB | GT fuel drain tank transfer | 2 |
| IN100 NDB | Drain DG lube oil transfer | 2 |
| IN100 NDB | Reduction Gear lube oil transfer | 2 |
| IN100 NDB | Dirty lube oil transfer | 2 |
| HULL SERVICE | | |
| MU 50-315 | Auxiliary machineries sea water | 2 |
| IA3-140 | Portable not submersible | 2 |
| ACF100NA NVBO | Fuel oil transfer | 2 |
| IN-ML 15 | Boats Fuel oil refilling | 1 |
| IN-ML40 | BV tank fuel oil stripping | 1 |
| HUSKY 1040 D74-3GG | Stripping tank single air pump | 1 |
| P50 | Dewatering /scuppering | 2 |
| HUSKY 1040 D74-3GG | Dewatering /scuppering portable single air pump | 1 |
| MCA 50-250R | Galley water tank draining | 1 |
| MCA 50-250R | Laundry water tank draining | 1 |
| MCA 50-250 S | Grey water tank draining | 1 |
| MCA 50-250 S | Black water tank draining | 1 |
| AIR CONDITIONING | | |
| MU 125-250 | Air conditioning sea water | 6 |
| MU 100-315 | Air conditioning chilled water | 3 |
| ACG052K7 | Fuel system pumping & filtering skid | 4 |

AIRCRAFT CARRIER C. CAVOUR (HULL 6090)

SHIPYARD: FINCANTIERI

YEAR: 2002

| PUMP TYPE | SERVICE | UNITS |
|--------------------|--|-------|
| ENGINE ROOM | | |
| MU 80-250M | Engine room cooler sea water system | 4 |
| MU 125-250M | Reduction gear sea water cooling | 4 |
| MU 80-400M | Sae water cooling system | 2 |
| ACE 038K3NVBP | Fuel oil drainage emptying | 3 |
| HUSKY 1590 DB3 318 | Dewatering / scuppering | 1 |
| MCA80-280M | Bilge Module | 1 |
| HUSKY 1040 D72 988 | Dewatering/scuppering portable single air pump | 3 |
| IN200 | Portable gear clean lube oil | 1 |
| IN25 | Gear clean lube oil | 1 |
| ACG060K6NVB0 | Reduction gear fuel oil transfer | 1 |
| ACG060K6NVB0 | Reduction gear fuel oil transfer | 1 |
| ACE032N3NVB0 | Fuel oil transfer | 3 |
| V50-3ST | Dirty oil emptying | 2 |
| ACF125L4 NVBO | Reduction gear lubrication | 4 |
| P50 | Ballast | 4 |
| MCA 80-280M | Bilge | 1 |
| T40 | Hot water circulation modules | 2 |
| P60V | Gas turbine draining service | 2 |
| MU 65-315A | Fire fighting diesel pump | 4 |
| MU 80-400M | Sea water refrigerating general services | 2 |
| MU 80-160M | Bilge | 1 |

| PUMP TYPE | SERVICE | UNITS |
|--------------------------------|----------------------------------|-------|
| HULL SERVICE | | |
| MCA 80-280M | Sewage emptying | 1 |
| P35 | Drainage pump (for chains pit) | 1 |
| P50 | Gasoil storage | 2 |
| BT302 | De-mineralised water | 1 |
| BT502 | Fresh water | 3 |
| BT313 | Hot Fresh water circulating | 3 |
| LPQ110L1 | Fuel oil transfer | 4 |
| ACG060K6 | Fuel oil transfer | 1 |
| 50G3 | Kerosene feed pump | 2 |
| MU65-315M | Kerosene transfer | 2 |
| P50 | Bilge | 5 |
| T40 | Hot water circulation | 4 |
| MCA 80-280M | Sewage tanks emptying | 1 |
| P50 | Transfer emptying sewage | 3 |
| P60 | Transfer emptying sewage | 2 |
| P50 | Portable bilge | 2 |
| MU 50-200 MPF | Portable diesel engine fire pump | 7 |
| AIR CONDITIONING | | |
| MU125-250M | Sea water circulating modules | 6 |
| MU125-400M | Cooling water conditioning | 9 |
| MU 80-400M | Fresh water conditioning | 6 |
| FUEL OIL FEEDING SYSTEM | | |
| ACG052N7 NVBO | Gas turbine gasoil feed | 6 |

AIRCRAFT CARRIER G. GARIBALDI (HULL 4367)

SHIPYARD: ITALCANTIERI

YEAR: 1982

| PUMP TYPE | SERVICE | UNITS |
|------------|---|-------|
| IN 200 | Foam System | 2 |
| T 40 | Hot Water Circulating | 3 |
| MU 40-250A | Galley Cooling System | 2 |
| H 341 S | F.W Pump (equivalent to G type) | 1 |
| H 343 SS | Distillated Water Pump (equivalent to G type) | 1 |
| BT 501 | Cold Fresh Water | 4 |
| BT 301 K | Laundry Draining System | 1 |
| BT 201 K | Refrigerator Draining System | 1 |
| MU 40-250 | Main Jacket Pump | 2 |
| MU 80-315 | Sea Water Circulation | 2 |
| MU 80-200 | Brine System | 2 |
| MU 32-200 | Distillate Water System | 2 |
| MU 32-200 | Condensate System Pump | 2 |
| MU 65-315 | H.W.Pump | 4 |
| MU 80-315 | Cold F.W.Pump | 9 |
| MU 125-250 | Sea Water Pump | 3 |

SUBMARINE SAURO CLASS, IV SERIES (HULL 5878 - 5879)

SHIPYARD: FINCANTIERI

YEAR: 1991

For each submarine:

| PUMP TYPE | SERVICE | UNITS |
|------------------|------------------------------------|--------------|
| MU 65-200S | Cooling system 60T/H | 2 |
| MU 40-200S | Cooling system 20T/H | 2 |
| MU 40-250S | Bilge | 2 |
| IN 15 | Fuel oil transfer | 1 |
| MU 32-200M | Fresh water | 2 |
| MU 32-160L/M | Cooling system | 2 |
| ACE 038-N1 IRBO | Lubrication system | 3 |
| MU 32-200LM | Hot fresh water circulating system | 1 |

PATROL VESSELS (HULL 6061 - 6062 - 6063 - 6064)

SHIPYARD: FINCANTIERI

YEAR: 1999

For each vessel:

| PUMP TYPE | SERVICE | UNITS |
|------------------|-----------------------------|--------------|
| BT 506 | Kerosene Transfer Pump | 2 |
| MU 40-315 | Ballast | 2 |
| BT 303 | F.W Pump | 2 |
| MU 80-250 | Sea Water Cooling System | 2 |
| MU 40-315 | Hot Fresh Water Circulating | 2 |

| PUMP TYPE | SERVICE | UNITS |
|------------|------------------------------|-------|
| 65 G2 | Fire Fighting | 4 |
| MU 65-315 | Cool Fresh Water Circulating | 3 |
| MU 65-315 | Main Engine S.W. Pump | 2 |
| MCA 50-280 | Grey Water | 2 |
| T 40 | Hot Fresh Water Circulating | 2 |
| P 35 | Sewage | 1 |
| P 60 V | Sewage/Bilge | 2 |
| P 50 V | Dirty Oil Transfer | 1 |
| IN 15 V | Oil Transfer | 1 |
| P 60 V | Laundry Transfer Pum | 2 |
| SWL 5000 | Bilge | 2 |

RESEARCH VESSELS ARETUSA & GALATEA

SHIPYARD: INTERMARINE

YEAR: 1999

For each vessel:

| PUMP TYPE | SERVICE | UNITS |
|-----------|--------------------|-------|
| IN 25 | L.O Transfer | 1 |
| IN 40 | L.O. Transfer | 1 |
| P 35 | Dirty Oil Transfer | 1 |
| P 35 | Sewage | 1 |
| P 60 | Grey Water | 3 |
| 40 G3 | Fire Fighting | 3 |

| PUMP TYPE | SERVICE | UNITS |
|-------------|------------------------------|-------|
| MU 25-160 M | F.W Circulation System | 2 |
| MU 25-160 M | Hot Water Circulation System | 2 |
| MU 25-160 M | Prop. M.E.Cooling System | 2 |
| MU 25-160 M | S.W Antifouling System | 2 |
| MU 32-200 M | Diesel Alt Cooling System | 3 |
| MU 40-160 M | Sea Water Cooling System | 2 |
| MU 65-250 M | Sea Water Cooling System | 2 |

SUPERHUNTERS ANIMOSO & ARDIMENTOSO

SHIPYARD: FINCANTIERI

YEAR: 1986 - 1987

| PUMP TYPE | SERVICE | UNITS |
|----------------|--------------------------------------|-------|
| MM 100-125 | Fire Fighting Pump - Navy Homologate | 8 |
| MU 65-315 M/40 | Sea Water Circulation | 4 |
| MU 32-160 M | Hot Fresh Water Circulation | 2 |
| BT503 | Kerosene Transfer | 2 |
| MU 65-315A | Kerosene Transfer | 2 |
| MU 65-315 AX | Emergency Fire | 2 |
| MU 65-315 M/40 | S.W kerosene Cooling System | 1 |
| MU 100-250M | Oil Cooling System | 4 |
| MU 65-315 M/30 | Sea Water Cooling System | 4 |
| MU 65-160 ES | Main Engine S.W Cooling System | 2 |

| PUMP TYPE | SERVICE | UNITS |
|------------|-----------------------------|-------|
| MU 80-315 | FW Cooling System | 6 |
| MU 125-250 | Sea Water Cooling System | 2 |
| MU 65-315 | Main Hot Fresh Water | 2 |
| MU 50-160M | Hot Water Circulation | 2 |
| T40 | Fresh Water Pump | 3 |
| H 344SS-TM | Cold Fresh Water | 4 |
| BT201 | Distilled Water Engine Room | 2 |

MINEHUNTERS LERICI AND GAETA CLASS (12 VESSELS)

SHIPYARD: INTERMARINE

YEAR: 1983 - 1989

For each vessel:

| PUMP TYPE | SERVICE | UNITS |
|------------------|---------------------------------|-------|
| MU 32-200 | Sanitary Pump | 2 |
| MU 80-200 | Sea Water Motor Cooling System | 2 |
| 101 G2 | Fire Fighting | 3 |
| BT 251K | Laundry Hot Fresh Water | 2 |
| BT 201 | Hot Water Circulation System | 2 |
| IN 100 | Fuel Oil Transfer | 2 |
| IN 40 | Lube Oil Transfer | 1 |
| IN 40 (portable) | Lube Oil Transfer | 1 |
| MU 40-250 | Fresh Water Contitioning System | 2 |

| PUMP TYPE | SERVICE | UNITS |
|--------------|------------------------------|-------|
| MU 40-250 | Fresh Water Cooling System | 2 |
| MU 40-250 | Hot Water Circulation System | 1 |
| BT 301 | Ballast | 1 |
| MU 50-250 | Air Cooling System | 2 |
| MU 80-250 | Engine Cooling System | 3 |
| MU 65-200 | Sea Water Cooling System | 2 |
| MCA 100-162M | Bilge | 1 |

WATER TANK ETNA (HULL 5957)

SHIPYARD: FINCANTIERI

YEAR: 1995

| PUMP TYPE | SERVICE | UNITS |
|-------------|--------------------------------------|-------|
| 32 G4 | Sea Water Cooling System | 4 |
| BT 502 | Lube Oil Transfer | 4 |
| MCA 50-280 | Ballast | 4 |
| MU 125-250 | Bilge | 4 |
| MU 200-250 | Sea Water Circulation System | 4 |
| MU 25-200 | Ballast | 4 |
| MU 32-160LM | Hot Water Circulating System | 4 |
| MU 32-200 | Pre-heating Water Circulation System | 4 |
| MU 32-250 | Sprinkler Pump | 4 |
| MU 50-200 | Grey Water Circulating System | 6 |
| MU 50-250 | S.W Generator Pump | 6 |
| MU 80-315 | Main S.W Pump | 6 |

FOREIGN NAVIES

ROYAL THAI NAVY

MINEHUNTERS (2 UNITS)

SHIPYARD: INTERMARINE

YEAR: 1997

ROYAL MALAYSIAN NAVY

MINEHUNTERS (4 vessels)

SHIPYARD: INTERMARINE

year: 1983

CORVETTES (HULL 907 - 908 - 909 - 910)

SHIPYARD: CANT. NAV. RIUNITI SPA

YEAR: 1981

ECUADORIAN NAVY

FRIGATES (HULL 888 - 889 - 890 - 891 - 892 - 893)

SHIPYARD: CANT. NAV. RIUNITI SPA

YEAR: 1981

VENEZUELAN NAVY

FRIGATES (HULL 304 - 305 - 306 - 307)

SHIPYARD: CANT. NAV. RIUNITI SPA

YEAR: 1980

FRIGATES (HULL 851 - 852 - 853 - 854 - 855 - 856)

SHIPYARD: CANT. NAV. RIUNITI SPA

YEAR: 1981

LOGISTIC SUPPORT VESSEL (HULL P 093)

SHIPYARD: HYUNDAI HEAVY INDUSTRIES (KOREA)

YEAR: 1999

| PUMP TYPE | SERVICE | UNITS |
|---------------|----------------------------------|-------|
| MU 50-160 | A/C chilled water pump | 2 |
| MU 40-250 L | Cargo D/G S.W. cooling pump | 2 |
| MU 80-250 LE | Bilge, fire&general service pump | 2 |
| MU 80-250 L | Fire pump | 3 |
| MU 200-250 LE | Ballast pump | 2 |
| MU 40-200 L | C.P.P.&R/G cooling S.W. Pump | 2 |
| MU 65-315 A | Emergency fire pump | 1 |
| MU 100-250 L | M/E jacket water stand-by pump | 2 |
| MU 80-250 L | M/E AC/OC water stand by pump | 2 |
| MU 40-250 L | S/S D/G S.W. cooling pump | 2 |
| MU 65-315 L | A/C cooling S.W. pump | 2 |
| MU 32-250 V | S/S ref. cooling S.W. Pump | 1 |
| SCB 22 | Sewage transfer pump | 1 |
| MU 32-160 | Hot water circulation pump | 1 |
| MCA 50-250 | Waste water pump | 1 |
| MU 32-250 V | Cargo ref. cooling S.W. Pump | 1 |
| IN 70 | M/E F.O. stand-by pump | 2 |
| IN 150 | F.O. transfer pump | 2 |
| IN 70 | L.O. transfer pump | 1 |
| IN 40 | L.O. replacement pump | 1 |
| IN 70 | Sludge pump rev. A | 1 |
| IN 70 | C.P.P. hyd. oil transfer pump | 1 |

NIGERIAN NAVY**MINEHUNTERS (2 UNITS)****SHIPYARD: INTERMARINE****YEAR: 1985**

For each vessel:

| PUMP TYPE | SERVICE | UNITS |
|------------------|---------------------------|--------------|
| BT201 | Hot Water Circulating | 2 |
| BT 251 K | Potable Water | 2 |
| BT 311 | Oily Water Transfer | 1 |
| IN 100 | Fuel Transfer | 2 |
| IN 25 | Waste Oil Transfer | 1 |
| IN 40 | Oily Waste Transfer | 1 |
| IN 40 | Lube Oil Transfer | 1 |
| MU 40-315 | Chilled Water Circulating | 2 |
| MU 50-200A | Water Chilling | 2 |
| MU 50-250 | Sea Water Cooling | 3 |

FINNISH NAVY**MINEHUNTERS (3 UNITS)****SHIPYARD: INTERMARINE****YEAR: 2007**

For each vessel:

| PUMP TYPE | SERVICE | UNITS |
|------------------|-------------------------|--------------|
| MU 50-315 M | Aux. Sea water cooling | 3 |
| IN 70 | Lube Oil Transfer | 1 |
| MU 50-315 M | HVAC Chilled Water circ | 2 |
| MU 50-250 MA | WCU Sea water cooling | 2 |

| PUMP TYPE | SERVICE | UNITS |
|----------------|--------------------------------|-------|
| MU 50-315 M | HVAC Hot water circulation | 2 |
| CN 65-40-315 M | Fire fighting | 3 |
| BT 302 | Cold potable water circulation | 2 |
| BT 201 | Hot water circulation | 2 |
| IN 150 | Fuel oil transfer | 2 |
| MU 32-250 M | Low pressure HI-FOG | 2 |
| IN 70 | Waste oil transfer | 1 |
| MCA 362-200 M | Grey water | 1 |
| P 50 | Black/grey water transfer | 1 |

SPANISH NAVY

MINEHUNTERS (HULL 209 - 210 - 211 - 212)

SHIPYARD: E.N. BAZAN

YEAR: 1995

For each vessel:

| PUMP TYPE | SERVICE | UNITS |
|-------------|-------------------------|-------|
| IN 15 | Oil Transfer | 1 |
| IN 100 | Transfer | 1 |
| IN 10 | Fuel Oil D.E-Aleter | 3 |
| MU 40-200 | Sea Water Fire Fighting | 4 |
| MU 50-250LM | Sea Water Circulating | 1 |

POMPE GARBARINO S.p.A.**REFERENCE LIST (NAVY)****SUBMARINE PROJECT S-80 - HULL S 81 - S 82 - S 83 - S 84****SHIPYARD: NAVANTIA****YEAR: 2006**

For each submarine:

| PUMP TYPE | SERVICE | UNITS |
|------------------|------------------------------|--------------|
| 50G5 VE | Regulating | 1 |
| MU 25-160 LM | Hydrophore group | 1 |
| AP 40 RA | Drain auxiliary | 4 |
| BTA 501 | Trim pump | 1 |
| AP 40 RA | Auxiliary sea water | 2 |
| IN ML 15 | Leakages tank draining pump | 1 |
| IN ML 50 | Diesel oil filtrate transfer | 1 |
| MU 65-200 LMS | T.S. Forward transfer pump | 2 |
| MU 65-200 VMS | T.S. AFT transfer pump | 2 |
| BT 201 V | Distribution pump | 1 |
| ACD 025L6 NTBP | Oil pump | 2 |

POLISH NAVY**MINEHUNTER (1 UNIT) KORMORAN II****SHIPYARD: REMONTOWA SHIPBUILDING****YEAR: 2014**

For each vessel:

| PUMP TYPE | SERVICE | UNITS |
|------------------|----------------|--------------|
| MU 50-200 LMB | Fire | 2 |

| PUMP TYPE | SERVICE | UNITS |
|---------------|--------------------------|-------|
| MU 65-200 LMB | Ships Flushing | 2 |
| IN 40 | Fuel oil transport | 2 |
| IN 50 | Dirty Lube Oil trnasport | 1 |
| P 50 | Oily bilge water | 2 |
| MU 65-250 LMB | Sea water cooling | 2 |
| MU 65-250 LMB | AC Cooling | 1 |
| BT 291 VB | Provision cooling pump | 2 |
| MU 40-250 LMB | AC cooling (F.W.) | 1 |

ALGERIAN NAVY**MINEHUNTER (2 UNIT)****SHIPYARD: INTERMARINE****YEAR: 2014 - 2017**

For each vessel:

| PUMP TYPE | SERVICE | UNITS |
|-------------|--|-------|
| MU 25-160 M | Thrust bearing and Rubber system cooling | 2 |
| IN 70 | Lube oil transfer | 1 |
| MU 50-200 M | CWUs Sea water cooling | 2 |
| MU 50-200 M | CW circulation for HVAC | 2 |
| MU 32-200 M | HW circulation for HWAC | 2 |
| MU 50-250 M | FireMain | 3 |
| MU 65-250 M | Auxiliary system S.W. Cooling | 3 |
| BT 301 | Cold Fresh water cirulation | 2 |
| MU 25-200 M | Hot fresh water cirulation | 2 |
| IN 100 | Fuel oil transfer | 2 |

| PUMP TYPE | SERVICE | UNITS |
|-----------|---------------------------|-------|
| BT 313 | Antifouling system supply | 1 |
| IN 70 | Oily water transfer | 1 |
| IN 70 | Waste oil transfer | 1 |

TAIWAN NAVY

MINEHUNTER (1 UNIT)

SHIPYARD: INTERMARINE

YEAR: 2016

For each vessel:

| PUMP TYPE | SERVICE | UNITS |
|-------------|--|-------|
| MU 25-160 M | Thrust bearing and Rubber system cooling | 2 |
| IN 70 | Lube oil transfer | 1 |
| MU 50-200 M | CWUs Sea water cooling | 2 |
| MU 50-200 M | CW circulation for HVAC | 2 |
| MU 32-200 M | HW circulation for HWAC | 2 |
| MU 50-250 M | FireMain | 3 |
| MU 65-250 M | Auxiliary system S.W. Cooling | 3 |
| BT 301 | Cold Fresh water cirulation | 2 |
| MU 25-200 M | Hot fresh water cirulation | 2 |
| IN 100 | Fuel oil transfer | 2 |
| BT 313 | Antifouling system supply | 1 |
| IN 70 | Oily water transfer | 1 |
| IN 70 | Waste oil transfer | 1 |