

## MATERIAL SCHEDULE: CARBON STEEL

PIPING SYSTEM	PIPE		TAKEDOWN JOINTS			VALVES		FLEX CONNS	FITTINGS TYPE & MATERIAL	REMARKS
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY	TRIM			
FUEL, LUBE, AND WASTE OIL	2" & BELOW	CARBON STEEL, ASTM A106 GR B, SCH 40, ANSI B36.10, SEAMLESS	STEEL, ASTM A105, CLASS 3000, UNION, SOCKET WELD, MSS-SP-83	INORGANIC FIBER WITH NITRILE BINDER, GARLOCK 5500 W/ ABS FIRE TEST CERT.	DRY AREAS: STEEL ASTM A307 GR B, ANSI B18.2.1, STEEL ASTM A563 GR A, ANSI B18.2.2	STEEL, ASTM A105 OR A216 GR WCB, ANSI B16.34, CLASS 150, SOCKET WELD OR FLANGED GATE, GLOBE, ANGLE, OR CHECK BALL: MSS-SP-110 STAINLESS STEEL OR CARBON STEEL	CR 13 STAINLESS STEEL OR ALUM. BRONZE	SAE J1942, REUSABLE FITTINGS, ABS APPROVED	STEEL, ASTM A105 OR A234 GR WPB, CLASS 3000, ANSI B16.11, SOCKET WELD CARBON STEEL PRESSFIT (VIEGA MEGAPRESS) with FKM SEALS TO ASTM F3226 STEEL	SCH 80 SHALL BE USED IN WAY OF NON-OIL TANKS PRESSFIT-ONLY CLASS III PIPING FLAMMABLE FLUIDS FLASHPOINT< 60C
	2-1/2" & ABOVE		STEEL, ASTM A105 OR A216 GR WCB, CLASS 150, FLANGE, SLIP-ON OR WELD NECK, ANSI B16.5		WET AREAS: SS ASTM A193 GR B8, ANSI B18.2.1 SS ASTM A194 GR B8, ANSI B18.2.2	ASTM A216 GR WCB ANSI B16.34, CLASS 150, FLANGED GATE, GLOBE OR CHECK BUTTERFLY: DUCTILE IRON, ASTM A395 OR A536 MSS-SP-67 WAFER OR LUG BALL: MSS-SP-110 STAINLESS STEEL OR CARBON STEEL	CR 13 STAINLESS STEEL OR ALUM. BRONZE		ASTM A234 GR WPB, SCH 40, ANSI B16.9 & B16.28, BUTTWELD CARBON STEEL PRESSFIT (VIEGA MEGAPRESS) WITH FKM SEALS TO ASTM F3226	
FRESH WATER COOLING	2" & BELOW	CARBON STEEL, ASTM A53 GR B, SCH 40, ANSI B36.10, ERW	STEEL, ASTM A105, CLASS 3000, UNION, SOCKET WELD, MSS-SP-83	NEOPRENE CLOTH INSERTED, FULL FACE, ANSI B16.21	DRY AREAS: STEEL ASTM A307 GR B, ANSI B18.2.1, STEEL ASTM A563 GR A, ANSI B18.2.2	STEEL, ASTM A105 OR A216 GR WCB, ANSI B16.34, CLASS 150, SOCKET WELD OR FLANGED GATE, GLOBE, ANGLE, OR CHECK BALL: MSS-SP-110 STAINLESS STEEL OR CARBON STEEL	CR 13 STAINLESS STEEL OR ALUM. BRONZE	SAE J1942, REUSABLE FITTINGS, EXP JOINTS: ASTM F1123 COMPLIANT, ABS APPROVED	STEEL, ASTM A105 OR A234 GR WPB, CLASS 3000, ANSI B16.11, SOCKET WELD CARBON STEEL PRESSFIT (VIEGA MEGAPRESS) WITH FKM SEALS TO ASTM F3226 STEEL	
	2-1/2" & ABOVE		STEEL, ASTM A105 OR A216 GR WCB, CLASS 150, FLANGE, SLIP-ON OR WELD NECK, ANSI B16.5		WET AREAS: SS ASTM A193 GR B8, ANSI B18.2.1 SS ASTM A194 GR B8, ANSI B18.2.2	ASTM A216 GR WCB ANSI B16.34, CLASS 150, FLANGED GATE, GLOBE OR CHECK BUTTERFLY: DUCTILE IRON, ASTM A395 OR A536 MSS-SP-67 WAFER OR LUG BALL: MSS-SP-110 STAINLESS STEEL OR CARBON STEEL	CR 13 STAINLESS STEEL OR ALUM. BRONZE		ASTM A234 GR WPB, SCH 40, ANSI B16.9 & B16.28, BUTTWELD CARBON STEEL PRESSFIT (VIEGA MEGAPRESS) WITH FKM SEALS TO ASTM F3226	
COMBUSTION EXHAUST PIPING (CLASS 1 PIPING)	6" & BELOW	CARBON STEEL, ASTM A106 GR B, SCH 40, ANSI B36.10, SEAMLESS CARBON STEEL, ASTM A106 GR B, SCH 10, ANSI B36.10, SEAMLESS	STEEL, ASTM A105 OR A216 GR WCB, CLASS 150, FLANGE, SLIP-ON OR WELD NECK, ANSI B16.5	STAINLESS STEEL 304L SPIRAL WOUND W/ GRAPHITE FILLER	SS ASTM A193 GR B8, ANSI B18.2.1 SS ASTM A194 GR B8, ANSI B18.2.2	NONE	NONE	STAINLESS STEEL METAL EXPANSION BELLOWS	STEEL, ASTM A234 GR WPB, SCH 40, ANSI B16.9, LONG RADIUS, BUTTWELD	JEREMIAS DWPOWER DOUBLE WALLED WELDLESS EXHAUST PIPE
	8" & ABOVE		STEEL, 1/2" PLATE, FLANGE						STEEL, ASTM A234 GR WPB, SCH 10, ANSI B16.9, LONG RADIUS, BUTTWELD	
COMBUSTION EXHAUST PIPING (CLASS 1 PIPING)	2-1/2" & ABOVE	CrMo STEEL, ASTM A335, GR P11, ANSI B36.10	CrMo STEEL, ASTM A182, GR F11, ANSI B16.5, FLANGE	METALLIC (NON-ASBESTOS)	CrMo ASTM 193, GR B16, ANSI B18.2.1 CrMo ASTM 194, GR 4, ANSI B18.2.2	NONE	NONE	STAINLESS STEEL METAL EXPANSION BELLOWS	CrMo STEEL, ANSI B16.9 & B16.28, BUTTWELD	JEREMIAS DWPOWER DOUBLE WALLED WELDLESS EXHAUST PIPE
COMPRESSED AIR 232 psi (16 bar) and below	2" & BELOW	CARBON STEEL, ASTM A106 GR B, SCH 40, ANSI B36.10, SEAMLESS	STEEL, ASTM A105, CLASS 3000, UNION, SOCKET WELD, MSS-SP-83	NITRILE FULL FACE, ANSI B16.21	DRY AREAS: STEEL ASTM A307 GR B, ANSI B18.2.1, STEEL ASTM A563 GR A, ANSI B18.2.2	STEEL, ASTM A105 OR A216 GR WCB, ANSI B16.34, CLASS 150, SOCKET WELD OR FLANGED GATE, GLOBE, ANGLE, OR CHECK BALL: MSS-SP-110 STAINLESS STEEL, CARBON STEEL, OR BRONZE	CR 13 STAINLESS STEEL	SAE J1942, REUSABLE FITTINGS, ABS APPROVED	STEEL, ASTM A105 OR A234 GR WPB, CLASS 3000, ANSI B16.11, SOCKET WELD CARBON STEEL PRESSFIT (VIEGA MEGAPRESS) WITH FKM SEALS TO ASTM F3226	PRESSFIT-NON ESSENTIAL SERVICE LESS THAN 232 PSI ONLY
	2-1/2" & ABOVE		STEEL, ASTM A105 OR A216 GR WCB, CLASS 150, FLANGE, SLIP-ON OR WELD NECK, ANSI B16.5		WET AREAS: SS ASTM A193 GR B8, ANSI B18.2.1 SS ASTM A194 GR B8, ANSI B18.2.2	STEEL, ASTM A216 GR WCB ANSI B16.34, CLASS 150, FLANGED GATE, GLOBE OR CHECK BALL: MSS-SP-110 STAINLESS STEEL, CARBON STEEL, OR BRONZE	CR 13 STAINLESS STEEL		STEEL, ASTM A234 GR WPB, SCH 40, ANSI B16.9 & B16.28, BUTTWELD CARBON STEEL PRESSFIT (VIEGA MEGAPRESS) WITH FKM SEALS TO ASTM F3226	



**MATERIAL SCHEDULE: CARBON STEEL**

PIPING SYSTEM	PIPE		TAKEDOWN JOINTS			VALVES		FLEX CONNS	FITTINGS TYPE & MATERIAL	REMARKS
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY	TRIM			
<b>BILGE AND BALLAST</b>	1 1/2" & BELOW	CARBON STEEL, ASTM A53 OR ASTM A106, GR B, SCH 80, ANSI B36.10, SEAMLESS	STEEL, ASTM A105, CLASS 3000, UNION, SOCKET WELD, MSS-SP-83	NEOPRENE CLOTH INSERTED, FULL FACE, ANSI B16.21	DRY AREAS: STEEL ASTM A307 GR B, ANSI B18.2.1, STEEL ASTM A563 GR A, ANSI B18.2.2	BRONZE ASTM B61 OR B62 ANSI B16.34 CLASS 150 FLANGE OR THREADED GATE, GLOBE, ANGLE, OR CHECK BALL: MSS-SP-110	BRONZE OR MONEL ALUM. BRONZE	NONE	STEEL, ASTM A105 OR A234 GR WPB, CLASS 3000, ANSI B16.11, SOCKET WELD	ALTERNATIVE - WAFER CHECK DI BODY ALUMINUM BRONZE DISC AND METAL OR RESILIENT SEAT
	2-1/2" & ABOVE	ASTM A53 OR ASTM A106 GR B SCH40 HOT DIPPED GALVANIZED ASTM A123	STEEL, ASTM A105 OR A216 GR WCB, CLASS 150, FLANGE, SLIP-ON OR WELD NECK, ANSI B16.5		WET AREAS: SS ASTM A193 GR B8, ANSI B18.2.1 SS ASTM A194 GR B8, ANSI B18.2.2	STEEL, ASTM A216 GR WCB ANSI B16.34, CLASS 150 FLANGE GATE, GLOBE, ANGLE, OR CHECK BUTTERFLY: MSS-SP-67 WAFER OR LUG A395 OR A536 BODY			STEEL, ASTM A234 GR WPB, SCH 80, ANSI B16.9 & B16.28, BUTTWELD	
<b>SANITARY OR WEATHER DRAINS</b>	2" & BELOW	CARBON STEEL, ASTM A53 ERW OR	(ONLY OUTSIDE TANK BOUNDARIES) STEEL, ASTM A105 OR A216 GR WCB, CLASS 150, FLANGE, SLIP-ON OR WELD NECK, ANSI B16.5	INORGANIC FIBER WITH NITRILE BINDER, GARLOCK 5500 OR EQUAL	DRY AREAS: STEEL ASTM A307 GR B, ANSI B18.2.1, STEEL ASTM A563 GR A, ANSI B18.2.2	NONE	NONE	NONE	STEEL, ASTM A105 OR A234 GR WPB, CLASS 3000, ANSI B16.11, SOCKET WELD CARBON STEEL PRESSFIT (VIEGA MEGAPRESS) WITH FKM SEALS TO ASTM F3226	FOR DRAINS USE ONLY WITHIN & THROUGH FUEL TANK BOUNDARIES
	2-1/2" & ABOVE	ASTM A106, GR B, SCH 40, ANSI B36.10			WET AREAS: SS ASTM A193 GR B8, ANSI B18.2.1 SS ASTM A194 GR B8, ANSI B18.2.2	STEEL, ASTM A216 GR WCB ANSI B16.34, CLASS 150, FLANGE GATE, GLOBE, ANGLE, OR CHECK BUTTERFLY: MSS-SP-67 ASTM A395 OR A536 WAFER OR LUG			ALUM. BRONZE	
<b>Fire Main, Sprinkler</b>	2" & BELOW	CARBON STEEL, ASTM A106, GR B, SCH 80, ANSI B36.10, SEAMLESS	STEEL, ASTM A105 OR A216 GR WCB, CLASS 150, FLANGE, SLIP-ON OR WELD NECK, ANSI B16.5	INORGANIC FIBER WITH NITRILE BINDER, GARLOCK 5500	DRY AREAS: STEEL ASTM A307 GR B, ANSI B18.2.1, STEEL ASTM A563 GR A, ANSI B18.2.2	BRONZE ASTM B61 OR B62 ANSI B16.34 CLASS 150 FLANGED GATE, GLOBE, ANGLE, OR CHECK BALL: MSS-SP-110	NONE	NONE	STEEL, ASTM A234 GR WPB, SCH 80, ANSI B16.9 & B16.28, BUTTWELD CARBON STEEL PRESSFIT (VIEGA MEGAPRESS) WITH FKM SEALS TO ASTM F3226	RESILIENT SEATED VALVES SHALL BE USCG CATEGORY A OR HIGH PERFORMANCE TO API 607 CRIMPED-USCG APPROVED FOR WET OR DRY FIREMAIN CRIMPED-ABS APPROVED FOR FIREMAIN NOT PERMANENTLY FILLED
	2-1/2" & ABOVE				WET AREAS: SS ASTM A193 GR B8, ANSI B18.2.1 SS ASTM A194 GR B8, ANSI B18.2.2	STEEL, ASTM A216 GR WCB ANSI B16.34, CLASS 150 FLANGE GATE, GLOBE, ANGLE, OR CHECK BUTTERFLY: MSS-SP-67 DUCTILE IRON ASTM A395 or A536				



## MATERIAL SCHEDULE: COPPER

PIPING SYSTEM	PIPE		TAKEDOWN JOINTS			VALVES		FLEX CONNS	FITTINGS TYPE & MATERIAL	REMARKS
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY	TRIM			
POTABLE WATER HOT & COLD, CHILLED WATER, AND CONTROL AIR	2" & BELOW	COPPER, ASTM B88, TYPE K OR L, SEAMLESS	COPPER, ASTM B88, UNION SOLDER JOINT, ANSI B16.22 OR BRONZE, ASME B62, UNION, SOLDER JOINT	NITRILE BUTADIENE RUBBER OR EPDM GASKET, NSF 61 CERT. INORGANIC FIBER WITH NITRILE BINDER, GARLOCK 5500	STEEL ASTM A307 GR B, ANSI B18.2.1, STEEL ASTM A563 GR A, ANSI B18.2.2	BRONZE, ASME SB61 OR SB62, CLASS 150, SOLDER JOINT BALL: MSS-SP-110 GATE/GLOBE/CHECK: MSS-SP-80 CONTROL: ASTM B283 C37700	BRONZE CONTROL: BRASS OR STAINLESS STEEL	EXP JOINTS: ASTM F1123 COMPLIANT, ABS APPROVED	COPPER, ASTM B88, SOLDER JOINT, ANSI B16.22 OR BRONZE, ASTM B62, SOLDER JOINT, ANSI B16.18 PRESSFIT COPPER (up to 4")	SOLDERS CONTAINING LEAD ARE PROHIBITED PRESSFIT ONLY CLASS III PIPING SYSTEMS
	2 1/2" & ABOVE		ANSI B16.18 BRONZE, ASTM B61 OR B62, CLASS 150, FLANGE, SOLDER JOINT, ANSI B16.24			BRONZE, ASME SB61 OR SB62, CLASS 150, FLANGE GATE/GLOBE/CHECK: MSS-SP-80 CONTROL: ASTM B283 C37700 BUTTERFLY: RESILIENTLY SEATED DUCTILE IRON MSS-SP-67 WAFER OR LUG	BRONZE CONTROL: BRASS OR STAINLESS STEEL			
REFRIGERATION SYSTEMS	3" & BELOW	COPPER, ASTM B280, ACR - TYPE K OR L, SEAMLESS	COPPER, UNION, ANSI B16.22	NONE	NONE	BRONZE, ASME SB61 OR SB62, SOLDER BALL: MSS-SP-110 GATE/GLOBE/CHECK: MSS-SP-80 EXPANSION: BRASS ASTM B283 ALLOY C37700	BRONZE EXPANSION: BRASS OR STAINLESS STEEL	HOSES: J2064 OR J3062	WROUGHT COPPER ASME B16.22	

**MATERIAL SCHEDULE: CPVC**

PIPING SYSTEM	PIPE		TAKEDOWN JOINTS			VALVES		FLEX CONNS	FITTINGS TYPE & MATERIAL	REMARKS
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY	TRIM			
CPVC SYSTEMS DRAINS, HOT & COLD POTABLE WATER, (CLASS 2 PIPING) FRESHWATER HEATING FRESHWATER COOLING	2" & BELOW	CPVC SCH 80 MIN. CELL CLASS 23447, ASTM D1784, ASTM F441 NSF PW	CPVC, CLASS 150, UNION, MIN. CELL CLASS 23447, ASTM D1784, ASTM F439	MOLDED FLUORO-ELASTOMER, GARLOCK STRESS SAVER XP OR EQUAL	STEEL ASTM A307 ANSI B18.2.1 GR B STEEL ASTM A563 ANSI B18.2.2 GR A	BALL VALVE, UNION END, CPVC MIN. CELL CLASS 23447, ASTM D1784 ALL CPVC VALVES SHALL HAVE ABS TYPE APPROVAL	PTFE SEATS, EPDM OR FKM UNION O-RINGS	NONE	CPVC, SCH 80 ASTM F439, SOCKET FITTINGS MIN. CELL CLASS 23447	ABS TYPE APPROVAL AND USCG APPROVAL FOR LOW FLAME SPREAD, SMOKE AND TOXICITY SEACOR, OR EQUAL
	2 1/2" & ABOVE		CPVC, CLASS 150 FLANGE MIN. CELL CLASS 23447, ASTM D1784, ASTM F439, ANSI B16.5			BUTTERFLY: MSS-SP-67 WAFER OR LUG A395 OR A536 BODY	EPDM SEAT, 316 STAINLESS DISC			



**MATERIAL SCHEDULE: CuNi**

PIPING SYSTEM	PIPE		TAKEDOWN JOINTS			VALVES		FLEX CONNS	FITTINGS TYPE & MATERIAL	REMARKS
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY	TRIM			
SEAWATER, BILGE, BALLAST	2" & BELOW	CNA 90:10, UNS C70600 MIL-T-16420 CLASS 200, SEAMLESS	BRONZE, ASME SB61, UNION, BRAZE, MIL-F-1183	NEOPRENE CLOTH INSERTED, FULL FACE, ANSI B16.21	DRY AREAS: STEEL ASTM A307 GR B, ANSI B18.2.1, STEEL ASTM A563 GR A, ANSI B18.2.2	GATE, GLOBE, CHECK: BRONZE ASME B61 BRONZE UNION END BRAZE/SOCKET WELD OR BALL BRONZE 3 PIECE	GATE, GLOBE, CHECK BRONZE OR NCA (MONEL), BALL STAINLESS	HOSES: SAE J1942 REUSABLE FITTINGS SAE 1475, EXP JOINTS: ASTM F1123 COMPLIANT, ABS APPROVED	BRONZE, ASTM B61, BRAZED MIL-F-1183 OR CLASS 400 CUNI 90/10 SOCKET WELD, PRESSFIT MEGAPRESS CUNI 90/10 CNA 90:10	PRESSFIT ONLY FOR USE IN CLASS III PIPING SYSTEMS
	2-1/2" & ABOVE		BRONZE, ASME SB61 CLASS 150, FLANGE, BRAZE, ANSI B16.24 OR CNA 90:10, UNS C70600 CLASS 150, FLANGE, ANSI B16.5		WET AREAS: SS ASTM A193 GR B8, ANSI B18.2.1 SS ASTM A194 GR B8, ANSI B18.2.2	GATE, GLOBE, CHECK: ASME B16.10 BRONZE, ASTM B61 CLASS 150, FLANGE BUTTERFLY: MSS-SP-67, WAFER OR LUG, DUCTILE IRON ASTM A395	BRONZE OR NCA (MONEL)		NAVSEA DWG. 810-1385880, CLASS 200 BUTTWELD OR MSS-SP-119 BELL END, PRESSFIT MEGAPRESS CUNI 90/10	
FIREMAIN, SPRINKLER, DELUGE	2" & BELOW	CNA 90:10, UNS C70600 MIL-T-16420 CLASS 200, SEAMLESS	BRONZE, ASME SB61, UNION, BRAZE, MIL-F-1183	INORGANIC FIBER WITH NITRILE BINDER, GARLOCK 5500 OR EQUAL W/ ABS FIRE TEST CERT.	DRY AREAS: STEEL ASTM A307 GR B, ANSI B18.2.1, STEEL ASTM A563 GR A, ANSI B18.2.2	GATE, GLOBE, CHECK: BRONZE ASME B61 BRONZE UNION END BRAZE/SOCKET WELD OR BALL BRONZE 3 PIECE	GATE, GLOBE, CHECK BRONZE OR NCA (MONEL), BALL STAINLESS	HOSES: SAE J1942 REUSABLE FITTINGS SAE 1475, EXP JOINTS: ASTM F1123 COMPLIANT, ABS APPROVED	BRONZE, ASTM B61, BRAZED MIL-F-1183 OR CLASS 400 CUNI 90/10 SOCKET WELD, PRESSFIT MEGAPRESS CUNI 90/10 CNA 90:10	RESILIENT SEATED VALVES SHALL BE USCG CATEGORY A OR HIGH PERFORMANCE TO API 607 CRIMPED-USCG APPROVED FOR WET OR DRY FIREMAIN CRIMPED-ABS APPROVED FOR FIREMAIN NOT PERMANENTLY FILLED
	2-1/2" & ABOVE		BRONZE, ASME SB61 CLASS 150, FLANGE, BRAZE, ANSI B16.24 OR CNA 90:10, UNS C70600 CLASS 150, FLANGE, ANSI B16.5		WET AREAS: SS ASTM A193 GR B8, ANSI B18.2.1 SS ASTM A194 GR B8, ANSI B18.2.2	GATE, GLOBE, CHECK: ASME B16.10 BRONZE, ASTM B61 CLASS 150, FLANGE BUTTERFLY: MSS-SP-67, WAFER OR LUG, DUCTILE IRON ASTM A395	BRONZE OR NCA (MONEL)		NAVSEA DWG. 810-1385880, CLASS 200 BUTTWELD OR MSS-SP-119 BELL END, PRESSFIT MEGAPRESS CUNI 90/10	
SEAWATER PRESS FIT	2" & BELOW	CNA 90:10, UNS C70600 MIL-T-16420 CLASS 200, SEAMLESS	UNION, CNA 90:10 UNS C70600, ANNEALED, PRESSFIT FLANGE, CNA 90:10 UNS C70600, CLASS 150, ANNEALED, ANSI 16.24, PRESS FIT	O-RINGS EITHER EPDM OR NBR INORGANIC FIBER WITH NITRILE BINDER, GARLOCK 5500 OR EQUAL	DRY AREAS: STEEL ASTM A307 GR B, ANSI B18.2.1, STEEL ASTM A563 GR A, ANSI B18.2.2	GATE, GLOBE, CHECK: BRONZE ASME B61 BRONZE UNION END BRAZE/SOCKET WELD OR BALL BRONZE 3 PIECE	GATE, GLOBE, CHECK BRONZE OR NCA (MONEL), BALL STAINLESS	NONE	CNA 90:10 UNS C70600, ANNEALED, PRESSFIT ASTM B466/B466M PRESSFIT MEGAPRESS	ABS TYPE APPROVED & USCG ACCEPTED PIPING SYSTEM ONLY, PRESSFIT ONLY FOR USE IN CLASS III PIPING SYSTEMS USE EITHER EPDM OR NBR O-RINGS AT PRESS FIT JOINTS AS REQUIRED BY APPROVAL DOCUMENTATION
	2-1/2" & ABOVE		UNION, CNA 90:10 UNS C70600, ANNEALED, PRESSFIT FLANGE, CNA 90:10 UNS C70600, CLASS 150, ANNEALED, ANSI 16.24, PRESS FIT		WET AREAS: SS ASTM A193 GR B8, ANSI B18.2.1 SS ASTM A194 GR B8, ANSI B18.2.2	GATE, GLOBE, CHECK: ASME B16.10 BRONZE, ASTM B61 CLASS 150, FLANGE BUTTERFLY: MSS-SP-67, WAFER OR LUG, DUCTILE IRON ASTM A395	BRONZE OR NCA (MONEL)			



**MATERIAL SCHEDULE: STAINLESS STEEL**

PIPING SYSTEM	PIPE		TAKEDOWN JOINTS			VALVES		FLEX CONNS	FITTINGS TYPE & MATERIAL	REMARKS
	SIZE	MATERIAL	MATERIAL	GASKETS	BOLTING	BODY	TRIM			
<b>SANITARY DRAINS</b>	200 MM & BELOW	STAINLESS STEEL AISI TYPE 316L	FLANGE, STAINLESS STEEL ANSI TYPE 316L, CLASS 150, ANSI B16.5, PUSH FIT	INORGANIC FIBER WITH NITRILE BINDER, GARLOCK 5500 OR EQUAL	SS ASTM A193 GR B8, ANSI B18.2.1 SS ASTM A194 GR B8, ANSI B18.2.2	NONE	NONE	NONE	STAINLESS STEEL ANSI TYPE 316L, PUSHFIT 316SS STECKDRAIN TO DIN EN 19530 PART2, AND BLUCHER TO DIN EN 1124-2	ABS TYPE APPROVED & USCG ACCEPTED ONLY FOR PUSHFIT-USE EPDM SEALS, VACUUM TYPE SEALS WHERE REQUIRED, ALLOWED ONLY WITHIN ONE WATERTIGHT COMPARTMENT, NO OVERBOARD DISCHARGE CONNECTIONS
<b>LOW PRESSURE HYDRAULIC OIL</b>	2" & BELOW	STAINLESS STEEL, ASTM A312, SCH 80S, GRADE TP316L, ANSI B36.19, SEAMLESS,	STAINLESS STEEL, ASTM A403, CLASS S, GRADE WP316L, CLASS 3000, UNION, SOCKET WELD, MSS- SP-83 OR STAINLESS STEEL, ASTM A182, GRADE F316L, CLASS 3000, SOCKET WELD, MSS-SP-83	INORGANIC FIBER W/ NITRILE BINDER, GARLOCK 5500 OR EQUAL	SS ASTM A193 GR B8, ANSI B18.2.1 SS ASTM A194 GR B8, ANSI B18.2.2	STAINLESS STEEL, ASTM A182 GRADE F316L, ANSI B16.34, CLASS 150, SOCKET WELD OR STAINLESS STEEL, ASTM A351 GRADE CF3M, ANSI B16.34, CLASS 150, SOCKET WELD	STAINLESS STEEL	SAE J1475, REUSABLE FITTINGS, ABS APPROVED	STAINLESS STEEL, ASTM A403, CLASS S, GRADE WP316L, CLASS 3000, ANSI B16.11, SOCKET WELD, OR STAINLESS STEEL, ASTM A182 GRADE F316L, CLASS 3000, ANSI B16.11, SOCKET WELD Pressfit (MegaPress FKM) Carbon steel w zinc nickel coating	RESILIENT SEATED SHELL VALVES SHALL BE USCG CATEGORY A PRESSFIT ONLY CLASS III PIPING
<b>FUEL OIL, LUBE OIL, FRESHWATER COOLING</b>	2-1/2" & ABOVE		STAINLESS STEEL, ANSI TYPE 316L, CLASS 150, FLANGE, SLIP-ON OR WELD-NECK, ASTM A182			STAINLESS STEEL, ASTM A351 GRADE CF8M, ANSI B16.34, CLASS 150, FLANGE			STAINLESS STEEL, ASTM A403, CLASS S, GRADE WP316L, SCH 80S, ANSI B16.9 & B16.28, BUTTWELD OR STAINLESS STEEL, ASTM A182 GRADE F316L, SCH 80S, ANSI B16.9 & B16.28, BUTTWELD Pressfit (MegaPress FKM) Carbon steel w zinc nickel coating	

