# ManiFlow Selector Valves (MSV)



# SchuFI

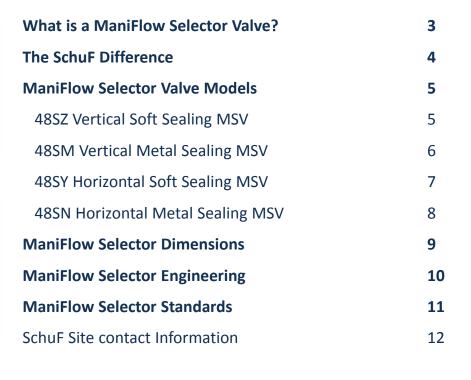
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SchuF is fully registered, accredited and certified worldwide





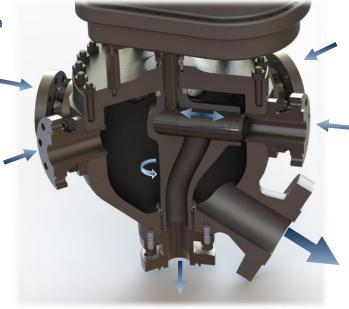


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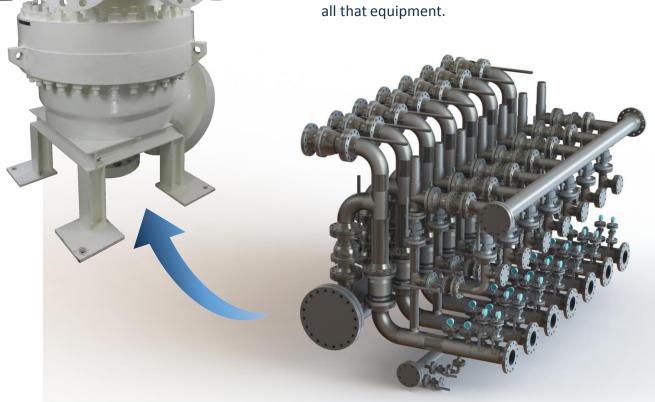


#### What is a ManiFlow Selector Valve?

A ManiFlow Selector Valve (MSV) is in essence a pipe manifold with an internal selector tube, giving the operator the ability to select and test a single flow line at a time, while collectively outputting the remaining flow lines through a single production outlet. The selected flow line medium is then diverted within the MSV to a test pipe, where it is then commonly analyzed at a remote facility. Once testing of the initially selected production line is finished, the operator can then select and test another production inlet, until the periodic testing is complete.



Typically designed for on-shore and off-shore oil field production, *MSV*'s are designed to consolidate upwards of 100+ pieces of manually operated piping equipment and meters of piping into a single valve. This solution offers a very big advantage, especially considering the overhead costs and manual labor associated with the operation and maintenance of all that equipment.





#### The SchuF Difference

Ever since the inception of the Lift Plug Valve in 1911, SchuF has been an industry leader in innovation and quality. With over 100 years of experience and innovation, SchuF has developed a vast product range capable of exceeding all of your application requirements. Our diverter valves, which were first produced back in the 1950's, have been renowned the world over as the perfection of quality and ingenuity. We have used this extensive knowledge and experience to produce yet another industry leading product range, the ManiFlow Selector Valve.

### "Truly elegant design incorporates top-notch functionality into a simple, uncluttered form."

-David Lewis

At SchuF we have developed that truly elegant design, incorporating simple yet practical solutions to the design flaws that plague other MSV's:

- Inadequate differential sealing pressure
- Test port leakage
- Actuator failure
- Premature seal failure & glazing
- Lack of Fire safe certification
- Loss of positional accuracy
- Frequent and costly servicing
- Limited material selection
- Loss of dynamic sealing over time
- Limited high temperature applications



SchuF MSV valves are designed to systematically eliminate these issues, while increasing service life and reducing operating costs. Our ManiFlow Selector Valves are the first to utilise 100% dynamic sealing, with differential sealing pressures up to 2500#.



In addition, SchuF boasts one of the most diverse model ranges available, offering both metal to metal and soft sealing options across two uniquely different platforms. We also offer complete skid packages for our MSV's, including all the required piping, support systems, draining systems, electrical, and control equipment to properly operate the valve in remote locations. These MSV skids are designed to meet all of your design requirement, and can be shipped with minimal on site assembly using standard shipping containers.



#### **48SZ ManiFlow Selector Valves**



**SchuF LTS® Actuators -** Offer extremely precise positioning of the sealing element every time, while never losing position.

These actuators provide the valve with a 0.5° positional accuracy, and are highly recommended to ensure accuracy and reduced wear of the seal.

Replaceable Soft Seal Inserts — Are easily adjustable and serviceable through the "Home Port", which is a preselected port on the inlet side of the valve, used for maintaining the sealing element. Seal rings can be made from a wide variety of materials such as PTFE, PTFE/ Kevlar, PTFE/ graphite, and Devlon® V just to name a few. With SchuF's unique retaining and adjusting system, maintaining and operating a MSV valve has never been easier, even in remote locations.

Dynamic Lower Pipe Sealing - Ensures that the ManiFlow Selector Valve can withstand higher sealing pressures, and eliminates leakage & contamination of the selected test port medium. With the addition of high rate springs in this sealing system we are able to provide our customers with 100% dynamic sealing throughout the entire valve. A removable test port flange allows the lower selector pipe seal to be replaced without having to open the valve.

Innovative Vertical Sealing- allows the sealing element to gently wipe the sealing surface during actuation. Unlike other valves, SchuF ManiFlow Selector Valves only apply a full sealing load once in the sealing position, reducing the wear on the sealing element.

48SZ MultiFlow Selector Valve Specifications (8 Port)									
Model (A x B)	2" x 4" 3" x 6" 4" x 8" 4" x 10" 6" x 12"								
Standard Classes Available	150# 300# 600# 900# 1500#	150# 300# 600# 900# 1500#	150# 300# 600# 900# 1500#	300# 600# 900# 1500#	150# 300#	150# 300# 600# 900# 1500#			
Working & Shell Pressure Bar (PSI)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)			
Maximum Pressure <i>Bar (PSI)</i>	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)			
Maximum Temperature	107° C (225° F)	107°C (225° F)	107°C (225° F)	107°C (225° F)	107°C (225° F)	107° C (225° F)			
Test Outlet CV	67	151	270	217	490	491			
Group Outlet CV	262	594	1040	1292	2786	3658			

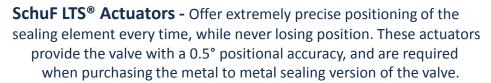


#### **48SM ManiFlow Selector Valves**









Metal to Metal Sealing - Is the optimum solution for caustic, sour service, and high pressure applications. With this advanced SchuF design we are able to provide you with 100% differential sealing pressure and a class IV leakage rate. With metal to metal sealing and high temperature packing elements we are able to offer sealing solutions up to 700°C (1292°F). Servicing or replacement of the sealing element can be done in the field, through anyone of the 8 inlet port.

Dynamic Lower Pipe Sealing - Ensures that the ManiFlow Selector Valve can withstand high sealing pressures, and eliminates leakage and contamination of the selected test port medium. With the addition of high rate springs in this sealing system we are able to provide our customers with 100% dynamic sealing throughout the entire valve assembly. A removable test port flange allows the lower selector pipe seal to be replaced without ever having to open the valve.

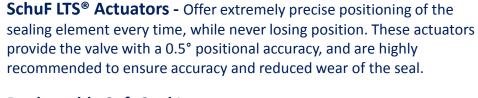
**Innovative Vertical Sealing-** Prevents the build up of medium contaminates on the sealing surface of the valve. The sealing elements on these MSV valves never require adjusting, and are self compensating to adjust for wear and any slight misalignment during sealing.

48SM MultiFlow Selector Valve Specifications (8 Port)										
Model (A x B)	2" x 4" 3" x 6" 4" x 8" 4" x 10" 6" x 12"									
Standard Classes Available	150# 300# 600# 900# 1500#	150# 300# 600# 900# 1500#	150# 300# 600# 900# 1500#	300# 600# 900# 1500#	150# 300#	150# 300# 600# 900# 1500#				
Working & Shell Pressure Bar (PSI)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)				
Maximum Pressure <i>Bar (PSI)</i>	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)				
Maximum Temperature	700° C (1292° F)	700° C (1292° F)	700° C (1292° F)	700° C (1292° F)	700° C (1292° F)	700° C (1292° F)				
Test Outlet CV	67	151	270	217	490	491				
Group Outlet CV	262	594	1040	1292	2786	3658				



#### **48SY ManiFlow Selector Valves**



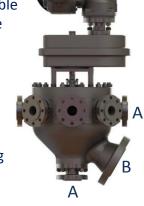


**Replaceable Soft Seal Inserts** — Are easily replaceable and serviceable through any one of the multiple inlet ports, reducing the amount of manual operation required for servicing the valve. Seal rings can be made from a wide variety of materials such as PTFE, PTFE/ Kevlar, PTFE/ graphite, and Devlon® V just to name a few. With SchuF's unique retaining and adjusting system, maintaining and operating a MSV valve has never been easier, even in the most remote locations.

**Dynamic Lower Pipe Sealing** - Ensures that the ManiFlow Selector Valve can withstand higher sealing pressures, and eliminates leakage & contamination of the selected test medium. With the addition of high rate springs in this sealing system we are able to provide our customers with 100% dynamic sealing throughout the entire valve assembly. A removable

test port flange allows the lower selector pipe seal to be replaced without ever having to open the valve.

Replaceable Seperable Seat Inserts - Enable this valve to utilize hardened and stellited sealing surfaces for erosive applications promoting longer service life. With competitor matching face to face dimensions the 48SY type MSV's can directly replace your existing MSV valve, without having to modify or replace your existing piping.



48SY MultiFlow Selector Valve Specifications (8 Port)									
Model (A x B)	2" x 4"	3" x 6"	4" x 8"	4" x 10"	6" x 12"	6" x 16"			
Standard Classes Available	150# 300# 600# 900# 1500#	150# 300# 600# 900# 1500#	150# 300# 600# 900# 1500#	300# 600# 900# 1500#	150# 300#	150# 300# 600# 900# 1500#			
Working & Shell Pressure Bar (PSI)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)			
Maximum Pressure <i>Bar (PSI)</i>	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)			
Maximum Temperature	107° C (225° F)	107°C (225° F)	107°C (225° F)	107°C (225° F)	107°C (225° F)	107° C (225° F)			
Test Outlet CV	67	151	270	217	490	491			
Group Outlet CV	262	594	1040	1292	2786	3658			

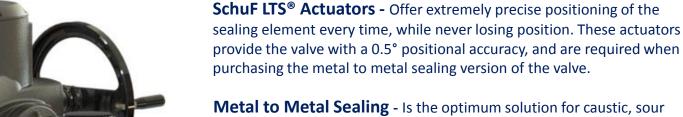


#### **48SN ManiFlow Selector Valves**









**Metal to Metal Sealing** - Is the optimum solution for caustic, sour service, and high pressure applications. With this advanced SchuF design we are able to provide you with 100% differential sealing pressure and a class IV leakage rate. With metal to metal sealing and high temperature packing elements we are able to offer sealing solutions up to 700°C (1292°F). Servicing or replacement of the sealing element can be done in the field, through any one of the 8 inlet ports.

**Dynamic Lower Pipe Sealing** - Ensures that the ManiFlow Selector Valve can withstand high sealing pressures, and eliminates leakage & contamination of the selected test port medium. With the addition of high rate springs in this sealing system we are able to provide our customers with 100% dynamic sealing throughout the entire valve assembly. A removable test port flange allows the lower selector pipe seal to be

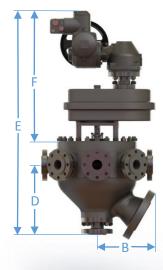
Replaceable Seperable Seat Inserts - Enable this valve to utilize hardened and stellited sealing surfaces for erosive applications promoting longer Service life. With competitor matching face to face Dimensions the 48SN type MSV's can directly replace your existing MSV valve, without having to modify or replace the piping.

replaced without ever having to open the valve.

48SN MultiFlow Selector Valve Specifications (8 Port)									
Model (A x B)	2" x 4"	3" x 6"	4" x 8"	4" x 10"	6" x 12"	6" x 16"			
Standard Classes Available	150# 300# 600# 900# 1500#	150# 300# 600# 900# 1500#	150# 300# 600# 900# 1500#	300# 600# 900# 1500#	150# 300#	150# 300# 600# 900# 1500#			
Working & Shell Pressure Bar (PSI)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)			
Maximum Pressure <i>Bar (PSI)</i>	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)	50 (740) 100 (1480) 150 (2220) 250 (3705)	20 (285) 50 (740)	20 (285) 50 (740) 100 (1480) 150 (2220) 250 (3705)			
Maximum Temperature	700° C (1292° F)	700° C (1292° F)	700° C (1292° F)	700° C (1292° F)	700° C (1292° F)	700° C (1292° F)			
Test Outlet CV	67	151	270	217	490	491			
Group Outlet CV	262	594	1040	1292	2786	3658			



## **ManiFlow Selector Dimensions**



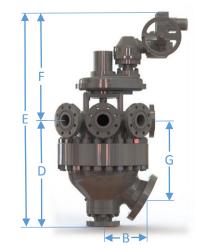


48SY & 48SN MultiFlow Selector Valve Dimensions (8 Port)								
Model (A x B)	"A" (mm)	"B" (mm)	"C" (mm)	"D" (mm)	"E" (mm)	"F" (mm)		
2" x 4"-150#	13,9 (353)	13,2 (335)	15,6 (395)	16,4 (417)	49,1 (1248)	26,7 (679)		
2" x 4"-300#	13,9 (353)	13,6 (345)	15,6 (395)	16,4 (417)	49,1 (1248)	26,7 (679)		
2" x 4"-600#	13,9 (353)	14,1 (358)	15,6 (395)	16,4 (417)	49,1 (1248)	26,7 (679)		
2" x 4"-900#	13,9 (353)	15,2 (386)	15,6 (395)	16,4 (417)	49,1 (1248)	26,7 (679)		
3" x 6"-150#	13,4 (340)	14,9 (378)	18,5 (469)	17,2 (437)	58,7 (1410)	33,1 (840)		
3" x 6"-300#	13,8 (351)	15,7 (399)	18,5 (469)	17,5 (445)	59,2 (1503)	33,1 (840)		
3" x 6"-600#	14,3 (363)	16,8 (427)	18,5 (469)	17,9 (455)	59,6 (1514)	33,1 (840)		
3" x 6"-900#	15,2 (386)	17,8 (452)	18,5 (469)	18,8 (478)	60,6 (153,9)	33,1 (840)		
3" x 6"-1500#	17,0 (432)	19,6 (498)	18,5 (469)	21,0 (533)	65,5 (1664)	33,1 (840)		
4" x 8"-150#	15,2 (386)	17,4 (442)	18,7 (475)	21,6 (549)	65,5 (1664)	33,5 (850)		
4" x 8"-300#	15,6 (396)	19,3 (490)	18,7 (475)	22,0 (559)	65,8 (1671)	33,5 (850)		
4" x 8"-600#	16,4 (417)	20,4 (518)	18,7 (475)	22,9 (582)	66,7 (1694)	33,5 (850)		
4" x 8"-900#	16,9 (429)	21,9 (556)	18,7 (475)	23,4 (594)	67,2 (1706)	33,5 (850)		
4" x 10"-900#	18,4 (467)	25,6 (650)	19,8 (504)	25,6 (650)	77,4 (1966)	38,1 (967)		
4" x 10"-1500#	18,8 (478)	28,1 (714)	19,8 (504)	26,0 (660)	77,9 (1979)	38,1 (967)		
6" x 12"-150#	20,3 (516)	25,6 (650)	20,5 (520)	32,7 (830)	84,8 (2154)	38,2 (970)		
6" x 12"-300#	20,7 (526)	26,9 (683)	20,5 (520)	32,7 (830)	85,0 (2159)	38,2 (970)		
6" x 16"-150#	20,3 (516)	27,7 (704)	20,7 (525)	33,4 (848)	85,7 (2179)	38,4 (975)		
6" x 16"-300#	20,7 (526)	28,9 (734)	20,7 (525)	33,8 (848)	86,1 (2187)	38,4 (975)		
6" x 16"-600#	21,7 (551)	30,5 (775)	20,7 (525)	34,8 (884)	87,2 (2215)	38,4 (975)		
6" x 16"-900#	22,3 (566)	33,2 (843)	20,7 (525)	36,9 (937)	89,6 (2275)	38,4 (975)		
6" x 16"-1500#	23,2 (590)	36,4 (925)	20,7 (525)	46,1 (1170)	93,7 (2380)	38,4 (975)		

48SZ & 48SM MultiFlow Selector Valve Dimensions (8 Port)							
Model (A x B)	"A" (mm)	"B" (mm)	"C" (mm)	"D" (mm)	"E" (mm)		
2" x 4"-150#	13,9 (353)		15,6 (395)	20,5 (520)	47,2 (1200)		

Model (A x B)	"A" (mm)	"B" (mm)	"C" (mm)	"D" (mm)	"E" (mm)	"F" (mm)	"G" (mm)
2" x 4"-150#	13,9 (353)	-	15,6 (395)	20,5 (520)	47,2 (1200)	26,7 (679)	-
2" x 4"-300#	13,9 (353)		15,6 (395)	20,5 (520)	47,2 (1200)	26,7 (679)	-
2" x 4"-600#	13,9 (353)	-	15,6 (395)	20,5 (520)	47,2 (1200)	26,7 (679)	-
2" x 4"-900#	13,9 (353)	-	15,6 (395)	20,5 (520)	47,0 (1200)	26,7 (679)	-
3" x 6"-150#	13,4 (340)	-	18,5 (469)	21,5 (545)	54,5 (1385)	33,1 (840)	-
3" x 6"-300#	13,8 (351)	11,8 (300)	18,5 (469)	21,9 (555)	54,9 (1395)	33,1 (840)	17,6 (447)
3" x 6"-600#	14,3 (363)	12,1 (307)	18,5 (469)	22,4 (570)	55,5 (1410)	33,1 (840)	18,7 (474)
3" x 6"-900#	15,2 (386)	-	18,5 (469)	28,3 (720)	61,4 (1560)	33,1 (840)	-
3" x 6"-1500#	17,0 (432)	-	18,5 (469)	26,2 (665)	59,3 (1505)	33,1 (840)	-
4" x 8"-150#	15,2 (386)	-	18,7 (475)	27,0 (685)	60,4 (1535)	33,5 (850)	-
4" x 8"-300#	15,6 (396)	-	18,7 (475)	27,6 (700)	61,0 (1550)	33,5 (850)	-
4" x 8"-600#	16,4 (417)	25,0 (378)	18,7 (475)	28,7 (730)	62,2 (1580)	33,5 (850)	25,0 (635)
4" x 8"-900#	16,9 (429)	28,1 (399)	18,7 (475)	29,3 (745)	62,8 (1595)	33,5 (850)	28,1 (715)
4" x 10"-900#	18,4 (467)	-	19,8 (504)	31,9 (810)	69,9 (1775)	38,1 (965)	-
4" x 10"-1500#	18,8 (478)	-	19,8 (504)	32,5 (825)	70,5 (1790)	38,1 (965)	-
6" x 12"-150#	20,3 (516)	-	20,5 (520)	40,6 (1030)	78,7 (2000)	38,2 (970)	-
6" x 12"-300#	20,7 (526)	-	20,5 (520)	40,6 (1030)	78,7 (2000)	38,2 (970)	-
6" x 16"-150#	20,3 (516)	-	20,7 (525)	41,7 (1060)	80,1 (2035)	38,4 (975)	-
6" x 16"-300#	20,7 (526)	-	20,7 (525)	42,1 (1070)	80,5 (2045)	38,4 (975)	-
6" x 16"-600#	21,7 (551)	-	20,7 (525)	43,3 (1100)	81,7 (2075)	38,4 (975)	-
6" x 16"-900#	22,3 (566)	-	20,7 (525)	46,0 (1170)	84,4 (2145)	38,4 (975)	-
6" x 16"-1500#	23,2 (590)	-	20,7 (525)	57,7 (1465)	96,1 (2440)	38,4 (975)	-

- Additional sizes, connections, and configurations are available upon request.
  Threaded or butt weld end connections are available for all sizes and configurations.







#### **ManiFlow Selector Engineering**

The creation of a ManiFlow Selector Valve at SchuF begins in our design department, where the body and pressure bearing parts are subjected to a numerous array of FEM analyses. Once the stringent core FEM analysis is completed, we proceed with battery of calculations on all of the valve's critical components to ensure that it will survive even the harshest of operating environments. During this phase of the job we can provide you with an optional detailed flow analysis and a report of these calculations. With a vast selection of sealing options, materials, claddings, coatings, and actuators available virtually every valve designed at SchuF is custom tailored to its specific application specifications. Once it's completed its design phase and the final design has been accepted by the customer,

At the production phase our skilled certified technicians machine our high quality castings, forgings, and raw bar to the strictest tolerances and precision. At this phase a large number of our customers request individual component testing prior to final assembly, which we routinely offer and encourage. Once production is complete and the designer, technicians, and the customer are completely satisfied with the components the valve moves on to the assembly and testing phase.

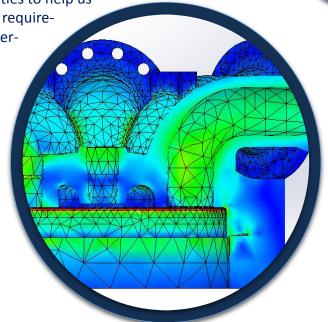
the production phase of the valve begins.

Throughout the assembly phase the valve components are checked repeatedly by both out technicians and engineers for fitment and accuracy to provide our customers with the highest quality valves possible. A multitude of testing methods are available to our customers in-house.

We also have an extensive list of preselected partners and testing facilities to help us

satisfy all of your specific require-

ments which cannot be performed in-house. When testing is completed the valve moves on to our painting department where we offer a wide variety of paints, coatings, and treatments based upon your specifications.







#### **ManiFlow Selector Standards**

#### Design Standards

**ASME B16.34** ASME Boiler & Pressure Vessel Code Sec. IX & VIII PED 97/23/EC



**Sour Service Standards** 

Nace MR0175 Nace MR0103 ISO 15156

Testing **Standards** 

EN 10204 API 598 **ASME B16.34** 

Flange **Standards** 

EN 10092-1 NORSOK U-001





Add. Standards

ISO 4406 EN ISO 9001 ATEX 94/9/EC API 599





















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