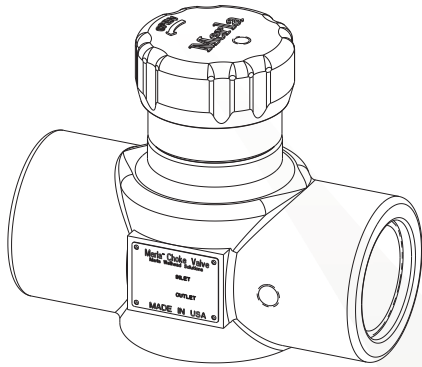




FCV FIELD SERVICE OPERATING MANUAL

PLUG & SEAT DESIGN



FCV SERIES are available in various body sizes and a wide range of configurations. These valves feature a valve adjusting handle that is calibrated in 1/64 of an inch increments for accurate settings of flow. The valve stem packing gland adapter is equipped with Telfon® packing for a positive seal and requires minimum maintenance. These valves are designed to operate in any installation position and resist the effects of vibration on the selected setting. Their construction allows easy inspection or replacement without removing the valve body from line. Type 316 & 410 SS components are available for corrosive services. Threaded and butt-weld connections are rated up to 5000# PSI working pressure.

Valve Trim seats are available in Stainless Steel, Tungsten Carbide materials, and other coatings are offered.

TRIM OPTIONS

Size	0.125"	0.250"	0.375"	0.500"	0.750"	1.000"
Cv	0.54	1.38	5.69	7.26	11.47	N/A
Material	Stainless Steel			Tungsten Carbide		
Coating	Stellite®		Plasmadized®	Nedox®		
Application	Oil, Gas, Water Service, Cold Service, H2S Sour Gas, Steam injection and high temperature service.					
Travel	0.350"					

* New Upcoming Trim sizes- 1-1/4" & 1-1/2".

BODY OPTIONS

Size	1.000"		2.000"		3.000"	
Type	Threaded	Flanged	Butt-Weld	Integral		
Flow Direction	Linear			Angle		
Max. Pressure	5000# PSI					
Material	316 SS	ASTM 216WCB	ASTM 350LF2			



DESIGN OVERVIEW

FCV Series valves are designed for a variety of oil, gas and water services. Valves are available in two body styles depending on application: Angle Body OR Through Body (In-line)

The through body design is used primarily to control gas flow into a gas lift installation; while the angle body can also be used for fluid flow control. An indicator ring and handle arrangement allows the valve to be set to a known flow area.

Merla designs, manufactures, and tests its products to meet national and international standards. For these products to operate within their normal specifications, they must be properly installed and maintained.

Merla achieves **customer satisfaction** by meeting or enhancing their requirements in terms of **quality**, function and delivery. We commit to continual improvement in every aspect of our business through the involvement of customers, employees and suppliers. We support the procedures described herein and recognize our responsibility to assure their compliance. Each person having responsibility under the quality system shall perform work in accordance with this manual and relevant procedures. Our suppliers are selected and shall follow Merla's General Requirements for Supplier of Critical-To-Quality Products & Services. They were selected based on quality delivery performance, cost, customer service and support of Merla Wellhead Solutions objectives.

Merla LLC has made every effort to manufacture a safe product of the very highest quality and design. This manual is designed to provide operating personnel with the information necessary to assemble and disassemble, service and maintain this product. The content of this operating manual should not be construed as a fixed rule without regard to sound engineering judgment, nor is it intended to supersede or override any state, federal or local regulations where applicable.

Merla Wellhead Solutions recommends reading the complete manual before beginning any operation. Be sure to note the areas of caution.

Removing the Trim

Note:

Handle has a notch for setting and reading the adjustment of the valve. By placing notch at “-0-” the valve will be in a closed position (Figure 1). Directly above and below notch are located the indicator and handle set screws (Detail 1).

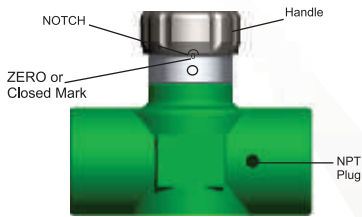


Figure 1

1. Open valve by rotating handle two full turns in a counter-clockwise rotation.
2. Bleed pressure from valve by loosening NPT plug located on valve body.

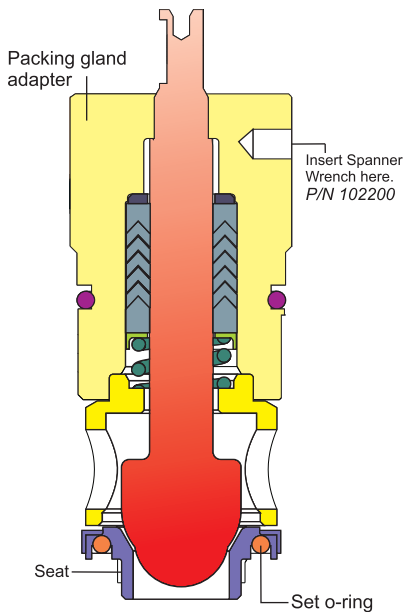
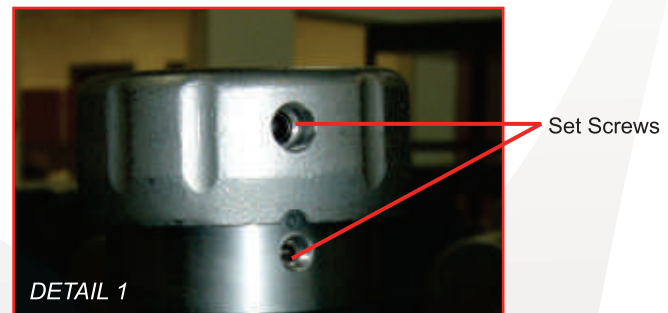


Figure 2

3. Remove locking set screw from handle and loosen the remaining set screws with 3/16” allen wrench.

4. The primary set screw should be loosened three full turns to clear stem. Handle is now free to be removed. Once handle is removed, the flow indicator ring is easily able to be removed. (Figure 8)

5. Use adjustment spanner wrench P/N 102200 to loosen and remove the packing gland adapter.(Detail 2/Figure 2)

6. Once packing gland adapter is removed, the seat is accessible and can now be removed.

7. Inspect seat sealing surface area and set o-ring for any surface damage. It is recommended to replace seat and/or o-ring upon any



Spanner Wrench P/N 102200

Packing Gland Adapter



DETAIL 2

Removing Packing Set

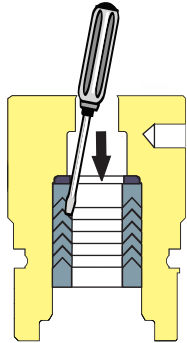


Figure 4

1. Unscrew the stem and remove from the packing gland adapter. The packing gland spacer, spring, and washers will now be free for removal.
2. Push the packing out of the packing gland adapter with a flat head screwdriver. Remove one or two packing ring seals at a time until all are removed.

Caution: Use care not to scratch the packing bore surface.

Installing NEW Packing Set

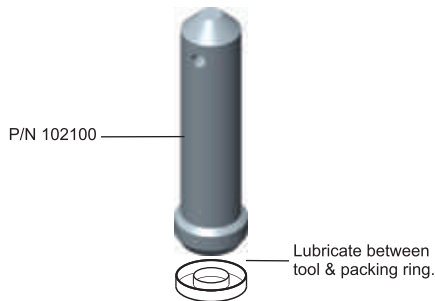


Figure 5

Note: Use P/N 102100 tool to install packing set. Tool is customized for precise fit with packing.

1. Inspect packing gland adapter bore surface for any scratches or pitting. If any surface finish damage is found, replacing packing gland adapter is recommended.
2. Grease packing gland adapter bore with Lubriplate multi-purpose grease P/N 102000. Provided with repair kit.
3. Put Lubriplate grease between each packing ring seal. Place packing gland adapter upside down, insert packing washer with beveled edge down.
4. Using P/N 102100 tool insert each packing ring seal one at a time. The Lubriplate on the packing ring seal will aid in attaching to tool. (See figure 5)

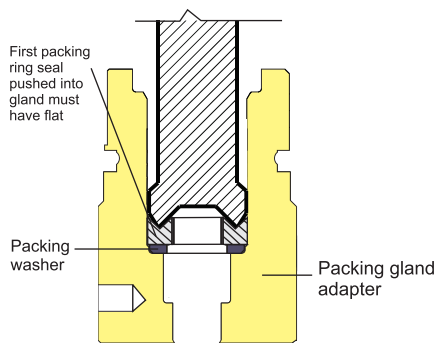


Figure 6

Note: The first packing ring seal pushed into the packing gland adapter must have a flat bottom. (See figure 6)

5. Once all packing ring seals are in place, fit spring washer with spring on top. Place packing gland spacer on next. Spring should easily fit on spacer. (See figure 7)
6. Grease stem sealing surface with Lubriplate P/N 102000. This will facilitate mating with packing gland spacer, spring, washers and packing gland adapter assembly. Push stem through assembly keeping stem tip face-up.
7. Take care not to damage stem sealing surface. Turn stem into assembly using handle. Mild tapping with mallet might be needed for proper engagement. Continue until stem sits properly on packing gland spacer and packing gland adapter have coupled properly. The stem will now be at the full open position.
8. If seat is being replaced, coat seat o-ring with Lubriplate grease P/N 102000. Install seat into body with the o-ring side down.
9. Grease packing gland adapter's thread. Using P/N 102200 spanner wrench tighten packing gland adapter onto valve body.

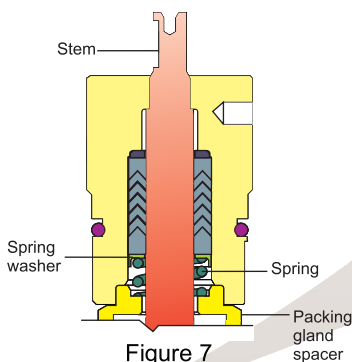


Figure 7

Installing Trim

1. Once packing gland adapter assembly and seat are inserted and tighten onto valve body, proceed to installation of trim.
2. Place indicator ring onto the packing gland adapter.
3. Re-fit handle to the stem with primary set screw. Ensure the set screw is pressing on the stem's flat surface.(Figure 8)
4. Turn handle clockwise until indicator notch reaches "-0-" position. Use the second handle set screw to lock in the flat handle set screw. (Locking set screw will have a red marking). Lock flow indicator ring to the packing gland adapter using set screw.(Figure 8)

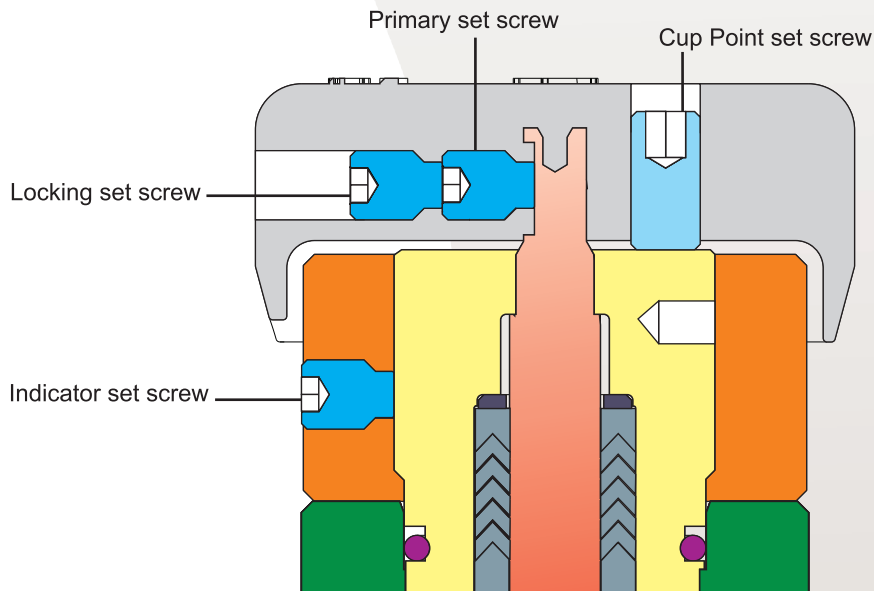
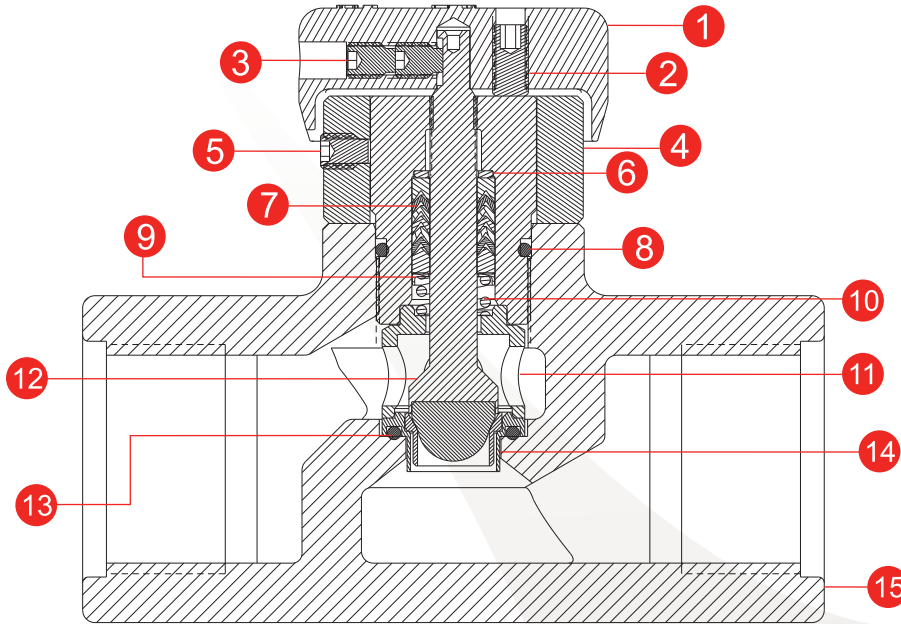
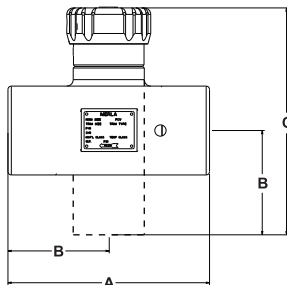


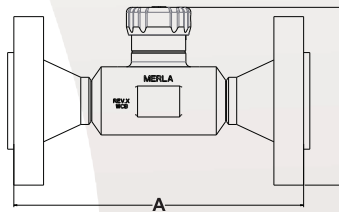
Figure 8



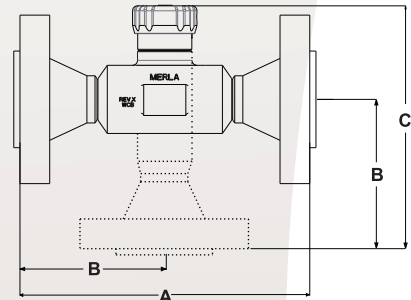
1. FCV Handle
2. Handle Locking Screw
3. Stem Locking Screw (2)
4. Indicator Ring
5. Indicator Locking Screw
6. Packing Washer
7. FCV Teflon® Seal Stack Assembly
8. O-Ring 2-220
9. Spring Washer
10. Spring
11. Packing Gland Spacer
12. 3/4" TC Stem
13. O-Ring 2-216
14. 3/4" TC Seat
15. 2" FCV-T Threaded Body



FCV-2T



FCV-Flanged 2T



FCV- 2A OR 2T

FCV Standard Dimensions & Estimated Weights

Connection Type	A						B						C						Weights					
	1" Nominal		2" Nominal		3" Nominal		1" Nominal		2" Nominal		3" Nominal		1" Nominal		2" Nominal		3" Nominal		1" Nominal		2" Nominal		3" Nominal	
Connection Size	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm
Threaded Body	6.3	160	7.8	198	N/A	N/A	**	**	3.79	96.3	N/A	N/A	7.9	201	8.81	224			10	4.5	20	9.1		
Butt-Weld Body	5	127	6.75	172	N/A	N/A	2.5	63.5	3.37	85.6	N/A	N/A	7.45	189	8.65	220			10	4.5	20	9.1		
ASME 150 RF	9.62	244	11.9	301	13	331	4.81	122	5.92	150	N/A	N/A	6.78	172	7.72	196			10	4.5	32	14.5		
ASME 150 RTJ	9.49	241	11.7	298	13	330	4.75	121	5.86	149	N/A	N/A	6.78	172	7.72	196			10	4.5	32	14.5		
ASME 600 RF	10.6	270	13.1	333	14.5	369	5.32	135	6.55	166	N/A	N/A	7.1	180	7.97	202			18	8.2	40	18.1		
ASME 600 RTJ	10.1	257	12.6	320	14	357	5.07	129	6.3	160	N/A	N/A	7.1	180	7.97	202			18	8.2	40	18.1		
ASME 900 RF	11.5	292	15.3	390	16	408	5.76	146	7.67	195	N/A	N/A	7.6	193	8.97	228			30	13.6	70	31.8		
ASME 900 RTJ	11	280	14.8	377	15.5	395	5.51	140	7.42	189	N/A	N/A	7.6	193	8.97	228			30	13.6	70	31.8		
ASME 1500 RF	11.5	292	15.3	390	17.3	439	5.76	146	7.67	195	N/A	N/A	7.6	193	8.97	228			30	13.6	70	31.8		
ASME 1500 RTJ	11	280	14.8	377	16.8	426	5.51	140	7.42	189	N/A	N/A	7.6	193	8.97	228			30	13.6	70	31.8		
2 000 API 6B	N/A	N/A	13.2	335	14.7	372	N/A	N/A	6.61	168	N/A	N/A	N/A	N/A							90	40.8		
3 000 API 6B	N/A	N/A	15.5	393	16.2	411	N/A	N/A	7.32	196	N/A	N/A	N/A	N/A							90	40.8		
5 000 API 6B	N/A	N/A	15.5	393	17.4	443	N/A	N/A	7.32	196	N/A	N/A	N/A	N/A							90	40.8		

** Inlet 2.85" - 72.39 mm
Outlet 2.98" - 75.69 mm

Note: For Custom/API Standard Dimensions Please Contact the Factory. Parts may vary on actual valve specs.

The logo features a stylized orange 'M' icon to the left of the word 'Merla' in a serif font, with 'Wellhead Solutions' in a sans-serif font below it.

Merla

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