Surface Systems

Distributors/Agents

GLOBAL SupplyLine Strategic FZV Partner

Global Supply Line are sole agents Australia, NZ & PNG, large stock range, shipping worldwide. Stock lists at our website: www.globalsupplyline.com.au
Contact us: sales@globalsupplyline.com.au

FZV

Table of Contents

FZV Conventional Wellhead Systems

Selecting a Wellhead System 1
Major Considerations for Casing Hanger Selection....1
FZ-S Wellhead Systems....2
FZ-S Casing Head Housings 4
FZ-S Casing Head Spools 4
FZ-S Casing Hangers 6
FZ-C Wellhead Systems 3
FZ-C Casing Head Housings....8
FZ-C Casing Head Spools....8
FZ-C Casing Hangers 10

FZV Tubing Spools and Hangers

Selecting a Completion System 12
Major Considerations for Tubing Hanger Selection....12
Single Completions
FZ-TS Tubing Spool 13
Tubing Hangers....14, 15
Dual Completions
FZ-TSD Tubing Spool 16
Tubing Hangers....17

Auxiliary Equipment

Casing Head Housing Bottom Connections 18
Casing Box Thread 18
Slip-on Weld 18
Slip Lock Casing Connection System....18
Secondary Seals 19,20
Lock Screws 21
Test Ports 21
Injection Ports 21

Wellhead and Tree Systems 22

FZV Conventional Wellhead Systems provide the flexibility, compatibility and interchangeability required for a wide range of surface applications. With the proven features of FZV systems comes reduced inventory requirements, lower costs and the ability to provide standard components.

FZV provides two Conventional Wellhead Systems, the FZ-S Wellhead and FZ-C Wellhead. The FZV FZ-S Conventional Wellhead System offers the industry's highest capacity conventional spool-type wellhead and is designed for use with all well depths and types of completions. The FZ-C Wellhead is a cost-effective, reliable system for a variety of applications. Although components are not interchangeable, the FZ-S Wellhead may be used in place of the FZ-C Wellhead for all applications. In addition, both wellheads are compatible with most FZV tubing spool and hanger configurations.

FZV has earned a reputation for quality wellhead products that meet or exceed API 6A specifications. FZV offers a complete line of conventional wellheads and Christmas trees to suit all casing and tubing programs for working pressures up to 15,000 psi. Equipment for surface applications ranges from low pressure, conventional equipment to systems for severe service and geothermal applications. For equipment requirements not covered in this brochure, contact your FZV representative.

Selecting a Wellhead System

The first step in determining which FZV wellhead system is best for your application is to determine the casing hanger style to be used. Each hanger profile is unique and is generally compatible with only a limited number of casing head/spool bowls. FZV has a complete line of slip-type casing hangers divided into two segments, FZ-S and FZ-C, each serving different applications.

Major Considerations for Casing Hanger Selection

- **Temperature Range**

  -20°F to 150°F (-29°C to 65°C)
  ..... FZ-C21, FZ-IC1P, FZ-C22

  -20°F to 250°F (-29°C to 121°C)
  ..... FZ-SB3

  Note: Although final production may be at one temperature,operating temperature at the casing hanger may be lower.

- **Hang-Off Capacity**

  Up to 50% of pipe body yield
  ..... FZ-C21, FZ-IC1P,FZ-C22

  Up to 80% of pipe body yield
  ..... FZ-SB3

- **Working Pressure**

  5000 psi WP FZ-C21, FZ-SB3
  10,000 psi WP ..... FZ- IC1P, FZ-C22

- **Method to Set Annulus Seal**

  Manual ..... FZ-SB3 , FZ-C21, FZ-IC1P

  Automatic ..... FZ-SB3 , FZ-C22

- **Seal Replaceable with Load on Hanger**

  Yes ..... FZ-SB3 , FZ-C21, FZ-IC1P

  No FZ-C22

- **Spool/Housing Compatibility**

  Single 45° shoulder (FZ-C Series)
  ..... FZ-C21,FZ-IC1P, FZ-C22

  Double 45° shoulder (FZ-S Series)
  ..... FZ-SB3

FZV Conventional Wellhead Systems

FZ-S Conventional Wellhead System

The FZV FZ-S Conventional Wellhead System offers the industry's highest capacity conventional spool-type wellhead and is designed for use with all well depths and all types of completions. The FZV FZ-S Wellhead incorporates the lower casing head housing and hanger and the subsequent casing head spools and hangers. This wellhead is the preferred wellhead for the conditions noted below. It is compatible with any of the FZV tubing spool and hanger configurations shown on pages 12-17.

Features:

Two 45° shoulders. Upper shoulder supports the pack-off hydraulic pressure and test loads. Lower shoulder provides independent support for the casing load. Selection of secondary seals and pack-off bushings provide versatility.

Working Pressure:	Up to 15,000 psi (Excluding tubing spool)
Operating Temperatures:	-20°F to +250°F (-29°C to +121°C)
Hang-Off Capacity:	Up to 80% of pipe body yield
Casing Head Housings:	FZ-S, FZ-SBP, FZ-SL (See page 4)
Casing Head Spools:	FZ-S, FZ-SBP, FZ-SL (See page 4)
Casing Hangers:	FZ-SB3 slip and seal assemblies(See page 6)
Tubing Spools and Hangers:	FZ-TS tubing spool: FZ-HT, FZ-T,FZ-TCL,FZ-SRL, FZ-CXS hangers FZ-TSD tubing spool: FZ-CDT hangers

FZ-C Conventional Wellhead System

The FZV FZ-C Conventional Wellhead System incorporates the lower casing head housing and hanger and the subsequent casing head spools and hangers. This wellhead is the preferred wellhead for the conditions noted below. Although components are not interchangeable, the FZ-S Wellhead may be used in place of the FZ-C Wellhead for these applications as well. Both wellheads are compatible with any of the FZV tubing spool and hanger configurations shown on pages 12-17.

Features:

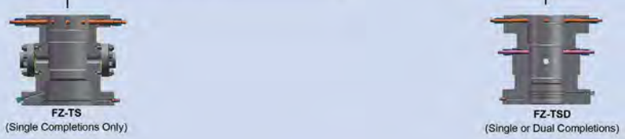
Straight-bore design with 45° load shoulder. Selection of secondary seals and pack-off bushings provide versatility.

Working Pressure:	Up to 10,000 psi (Excluding tubing spool)
Operating Temperatures:	-20°F to +150°F (-29°C to +65°C)
Hang-Off Capacity:	Up to 50% pipe body yield
Casing Head Housings:	FZ-C, FZ-CBP (See page 8)
Casing Head Spools:	FZ-C, FZ-CBP, FZ-CL (See page 8)
Casing Hangers:	FZ-C21,FZ-IC1P, FZ-C22 slip and seal assemblies (See page 10)
Tubing Spools and Hangers:	FZ-TS tubing spool: FZ-HT, FZ-T,FZ-TCL,FZ-SRL, FZ-CXS hangers
	FZ-TSD tubing spool: FZ-CDT hangers

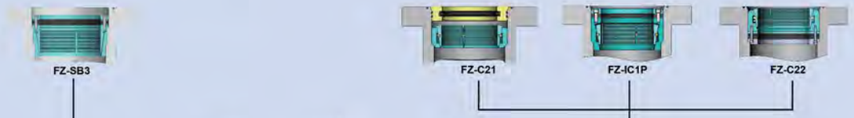
FZV Conventional Wellhead Systems

Tubing Hangers
Tubing hangers are available for single, dual completions.

Tubing Spools
Two tubing spool designs are available for standard service applications. The FZ-TSD Tubing Spool has the same bowl configuration as the FZ-TS Tubing Spool and is compatible with dual tubing hangers.



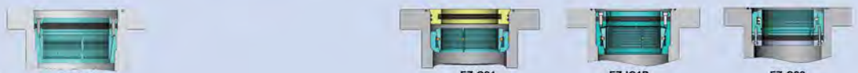
Casing Hangers
The slip-type casing hanger designs are available for the FZ-S and FZ-C Casing Spools. Each hanger has specific applications. In addition, there are mandrel type casing hangers available for both bowl types.



Casing Spools
The FZ-S and FZ-C Casing Spools have several options for top connections. One option features no lock screws; another features four lock screws 90° apart; and the final option features multiple lock screws depending on the flange size.

Secondary Seals
A variety of secondary seals are available to fit FZ-S and FZ-C Casing Spools as well as the FZ-TS and FZ-TSD Tubing Spools.

Casing Hangers
The slip-type casing hangers are available for the FZ-S and FZ-C Casing Head Housings. Each hanger has a specific application. In addition, there are mandrel-type casing hangers available for both bowl types.



Casing Head Housing
The FZ-S and FZ-C Casing Head Housings have several options for top connections. One option features no lock screws; another features four lock screws 90° apart; and the final option features multiple lock screws depending on the flange size.

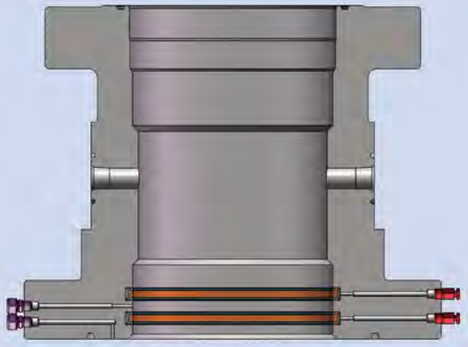
Bottom Connections
The FZ-S and FZ-C Casing Head Housings are available with a selection of bottom connections to match installation requirements.

FZ-CR Landing Base
The FZ-CR landing base can be used with any style housing to transfer loads to the conductor.

The FZ-S Casing Head Housing seals off the surface casing and provides a landing bowl for the next casing string as well as an attachment for the BOP stack. The FZ-S Casing Spool seals off the surface casing string and its landing bowl provides support for the next casing string.

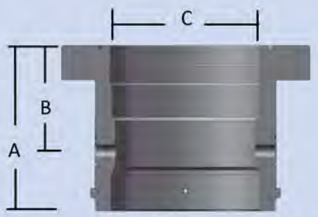
- **Bowl Design**
  Dual 45° shoulder design provides capability to hang heavy casing strings without damage. The upper shoulder supports pack-off hydraulic pressure and test loads while the lower shoulder provides independent support for the casing load.
- **Casing Hanger Compatibility**
  Compatible with the FZ-SB3 Casing Hanger series. See pages 6 and 7 for more information.
- **Lock Screw Configurations**
  FZ-S Housings and Spools are available with or without Type DS Lock Screws in the top flange as follows:
  FZ-S Housing and Spool- without lock screws.
  FZ-SBP Housing and Spool - four lock screws 90° apart for retention of the wear bushing during drilling.
  FZ-SB3 Housing and Spool - a full compliment of lock screws used for retention of the casing hanger (exact number dependent on flange size). See page 21 for more information on Type DS Lock Screws.
- **Side Outlets**
  Available with line pipe threaded and studded outlets. Studded outlets are threaded for valve removal plugs.
- **Housing Bottom Connections**
  FZ-S Housings are available with casing box threads, slip on weld (without O-ring) and Slip Lock bottom connections. See page 18 for more information.
- **Secondary Seals**
  FZ-S Spools are available with Single and Double P, Single and Double FS secondary seals. See page 19 for more information.
- **Test and Injection Ports**
  All test ports are metal sealing and are designed to allow venting. Injection ports include buried check valves. See page 21 for more information.
- **Landing Base**
  Type FZ-CR landing bases can be provided to transfer loads to the conductor. These landing bases do not require welding to the casing head housing.

FZ-S Casing Head Housing

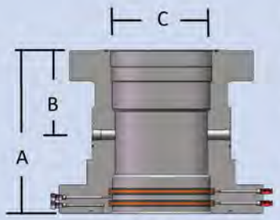


FZ-S Casing Head Spool

FZ-S Casing Head Housings and Spools



FZ-S Housing



FZ-S Spool

Dimensional Data:
A = Maximum height
B = Height from center line of outlet to top of flange
C = Maximum through bore
Note1: All dimensions are estimates and finished dimensions may vary.
Note2: C dimensions for spools may be smaller in order to match casing ID.
Note3: A,B and C dimensions are same for both slip-on weld bottom and casing box thread bottom.

FZ-S Casing Head Housing Dimensions

Top Flange		Casing Size (in.)	Side Outlets			Dimensions (in.)			Dimensions (mm)		
Nominal Size (in.)	WP (psi)		Threaded	Studded							
			Size (in.)	Size (in.)	WP (psi)	A	B	C	A	B	C
9	2000	8-5/8	2	2-1/16	2000	16.62	10.25	8.00	422.15	260.35	203.20
9	3000	8-5/8	2	2-1/16	5000	17.88	10.62	8.00	454.15	269.75	203.20
11	3000	8-5/8	2	2-1/16	5000	20.50	12.50	8.03	520.70	317.50	203.96
11	3000	9-5/8	2	2-1/16	5000	20.50	12.50	8.91	520.70	317.50	226.31
11	3000	10-3/4	2	2-1/16	5000	20.50	12.50	9.95	520.70	317.50	252.73
11	5000	8-5/8	2	2-1/16	5000	19.25	12.81	8.03	488.95	325.37	203.96
11	5000	9-5/8	2	2-1/16	5000	19.25	12.81	8.91	488.95	325.37	226.31
11	5000	10-3/4	2	2-1/16	5000	19.25	12.81	9.95	488.95	325.37	252.73
13-5/8	3000	11-3/4	2	2-1/16	5000	19.31	11.00	10.91	490.47	279.40	277.11
13-5/8	3000	13-3/8	2	2-1/16	5000	18.00	11.00	12.62	457.20	279.40	320.55
13-5/8	5000	11-3/4	2	2-1/16	5000	19.50	12.81	10.91	495.30	325.37	277.11
13-5/8	5000	13-3/8	2	2-1/16	5000	19.50	12.81	12.62	495.30	325.37	320.55
16-3/4	3000	16	2	2-1/16	2000	17.50	11.21	15.12	444.50	284.73	384.05
21-1/4	3000	20	2	2-1/16	2000	20.25	11.25	19.00	514.35	285.75	482.60
21-1/4	3000	18-5/8	2	2-1/16	5000	20.25	13.62	17.62	514.35	345.95	447.55
21-1/4	3000	20	2	2-1/16	5000	20.25	13.62	19.00	514.35	345.95	482.60
21-1/4	5000	20	2	2-1/16	5000	24.32	16.00	19.00	617.73	406.40	482.60

FZ-S Casing Head Spool Dimensions

Top Flange		Bottom Flange		Side Outlets			Dimensions (in.)			Dimensions (mm)		
Nominal Size (in.)	WP (psi)	Nominal Size (in.)	WP (psi)	Threaded	Studded							
				Size (in.)	Size (in.)	WP (psi)	A	B	C	A	B	C
11	3000	13-5/8	3000	2	2-1/16	5000	20.75	9.94	10.00	527.05	252.48	254.00
11	5000	11	3000	2	2-1/16	5000	26.25	12.88	10.00	666.75	327.15	254.00
11	5000	11	5000	2	2-1/16	5000	26.25	12.88	10.00	666.75	327.15	254.00
11	5000	13-5/8	3000	2	2-1/16	5000	26.00	13.44	10.00	660.40	341.38	254.00
11	5000	13-5/8	5000	2	2-1/16	5000	26.31	13.63	10.00	668.27	346.20	254.00
11	5000	16-3/4	3000	2	2-1/16	5000	26.25	13.12	10.00	666.75	333.25	254.00
11	10,000	11	10,000	2	2-1/16	10,000	31.25	15.38	10.00	793.75	390.65	254.00
11	10,000	13-5/8	5000	2	2-1/16	10,000	29.25	14.88	10.00	742.95	377.95	254.00
11	10,000	13-5/8	10,000	2	2-1/16	10,000	29.88	14.06	10.00	758.95	357.12	254.00
13-5/8	5000	13-5/8	5000	2	2-1/16	5000	26.50	13.25	12.62	673.10	336.55	320.55
13-5/8	5000	20-3/4	3000	2	2-1/16	5000	25.25	12.25	12.62	641.35	311.15	320.55

FZV FZ-S Casing Head Spools and Housings accept all hangers in the SB hanger family. FZ-S hangers can be lowered through the BOP as soon as the cement plug hits bottom. Once in place, they support the entire casing weight and seal the annulus. Mandrel style casing hangers can also be supplied.

The unique slip design of the FZ-S family of hangers achieves controlled friction when precision-machined slips with sharp inner teeth securely bite casing, while dull outer teeth on the back side contact the slip bowl. Because these hangers are installed in the double 45° shoulder housing design, the mechanical load is completely separated from the hydraulic load. This allows the assembly to hold full test pressure while varying the slip load from zero to full joint strength without changing deflection of casing in the pressured zone.

Note:This section mainly introduces the FZ-SB3 Casing Hanger.

FZ-SB3 Casing Hanger

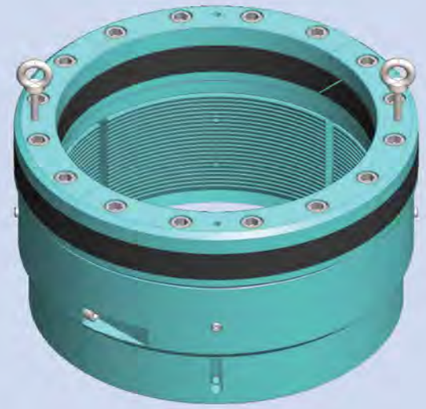
The FZ-SB3 Casing Hanger is a wrap-around slip and seal assembly designed for 5000 psi WP service. It is rated for a hang-off capacity of 80% of pipe body yield. Like the other slips in the SB family, it requires a load of only 15,000 lb to set the seal. In addition, the seal can be re-energized by tightening the cap screws. The seal can be replaced with the full rated load on the hanger.

FZ-SB3 Casing Hanger

Casing Hangers for FZ-S Casing Head Housings and Spools

Basic Parameters of FZ-S Casing Hanger

Model	Spool Compatibility	Hanger Type	Operating Temperature	Working Pressure (psi)	Rated Load Capacity	Method to Set Seal	Seal Replaceable with Load on Hanger
FZ-SB3	FZ-S, FZ-SBP, FZ-SL	Wrap-Around Slip and Seal Assembly	-20° to 250°F -29° to 121°C	5000	80% minimum pipe body yield	Casing Weight or Manual	Yes



FZ-SB3 Casing Hanger

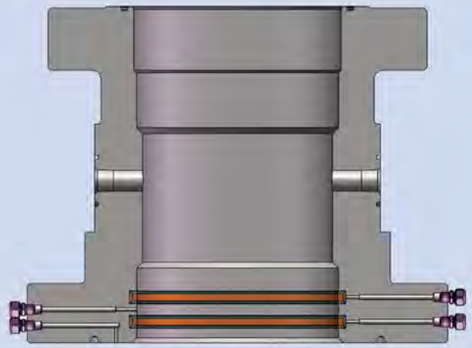
The FZ-C Casing Head Housing seals off the surface casing and provides a landing bowl for the next casing string as well as an attachment for the BOP stack. The FZ-C Casing Spool seals off the surface casing string and its landing bowl provides support for the next casing string.

- **Bowl Design**
  A straight bore with a single 45° shoulder design provides support for the casing load and reduces the risk of bowl damage due to drill stem rotation. This design minimizes hoop load on the housing while maintaining high hanging capacity.
- **Casing Hanger Compatibility**
  Accommodates a wide variety of slip-type and mandrel hangers including the FZ-C21, FZ-IC1P and FZ-C22. See pages 10 and 11 for more information.
- **Lock Screw Configurations**
  FZ-C Housings and Spools are available with or without Type DS Lock Screws in the top flange as follows:
  FZ-C Housing and Spool - without lock screws.
  FZ-CBP Housing and Spool - four lock screws 90° apart for retention of the wear bushing during drilling.
  FZ-CL Housing and Spool - a full complement of lock screws used for retention of the casing hanger (exact number dependent on flange size).

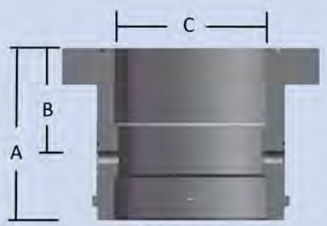
See page 21 for more information on Type DS Lock Screws.

- **Side Outlets**
  Available with line pipe threaded and studded outlets. Studded outlets are threaded for valve removal plugs.
- **Housing Bottom Connections**
  FZ-C Housings are available with casing box threads, slip on weld (without O-ring) and Slip Lock bottom connections. See page 18 for more information.
- **Secondary Seals**
  FZ-C Spools are available with Single and Double P, Single and Double FS secondary seals. See page 19 for more information.
- **Test and Injection Ports**
  All test ports are metal sealing and are designed to allow venting. Injection ports include buried check valves.
  See page 21 for more information.
- **Landing Base**
  Type FZ-CR landing bases can be provided to transfer loads to the conductor. These landing bases do not require welding to the casing head housing.

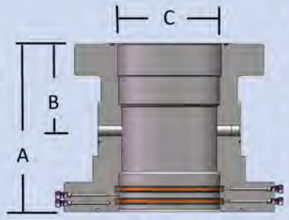
FZ-C Casing Head Housing



FZ-C Casing Head Spool



FZ-C Housing



FZ-C Spool

Dimensional Data:
A = Maximum height
B = Height from center line of outlet to top of flange
C = Maximum through bore
Note1: All dimensions are estimates and finished dimensions may vary.
Note2: C dimensions for spools may be smaller in order to match casing ID.
Note3: A,B and C dimensions are same for both slip-on weld bottom and casing box thread bottom.

FZ-C Casing Head Housing Dimensions

Top Flange		Casing Size (in.)	Side Outlets			Dimensions (in.)			Dimensions (mm)		
Nominal Size (in.)	WP (psi)		Threaded	Studded							
			Size (in.)	Size (in.)	WP (psi)	A	B	C	A	B	C
9	2000	8-5/8	2	2-1/16	2000	16.62	10.25	8.00	422.15	260.35	203.20
9	3000	8-5/8	2	2-1/16	5000	17.88	10.62	8.00	454.15	269.75	203.20
11	3000	8-5/8	2	2-1/16	5000	20.50	12.50	8.03	520.70	317.50	203.96
11	3000	9-5/8	2	2-1/16	5000	20.50	12.50	8.91	520.70	317.50	226.31
11	3000	10-3/4	2	2-1/16	5000	20.50	12.50	9.95	520.70	317.50	252.73
11	5000	8-5/8	2	2-1/16	5000	19.25	12.81	8.03	488.95	325.37	203.96
11	5000	9-5/8	2	2-1/16	5000	19.25	12.81	8.91	488.95	325.37	226.31
11	5000	10-3/4	2	2-1/16	5000	19.25	12.81	9.95	488.95	325.37	252.73
13-5/8	3000	11-3/4	2	2-1/16	5000	19.31	11.00	10.91	490.47	279.40	277.11
13-5/8	3000	13-3/8	2	2-1/16	5000	18.00	11.00	12.62	457.20	279.40	320.55
13-5/8	5000	11-3/4	2	2-1/16	5000	19.50	12.81	10.91	495.30	325.37	277.11
13-5/8	5000	13-3/8	2	2-1/16	5000	19.50	12.81	12.62	495.30	325.37	320.55
16-3/4	3000	16	2	2-1/16	2000	17.50	11.21	15.12	444.50	284.73	384.05
21-1/4	3000	20	2	2-1/16	2000	20.25	11.25	19.00	514.35	285.75	482.60
21-1/4	3000	18-5/8	2	2-1/16	5000	20.25	13.62	17.62	514.35	345.95	447.55
21-1/4	3000	20	2	2-1/16	5000	20.25	13.62	19.00	514.35	345.95	482.60
21-1/4	5000	20	2	2-1/16	5000	24.32	16.00	19.00	617.73	406.40	482.60

FZ-C Casing Spool Dimensions

Top Flange		Bottom Flange		Side Outlets			Dimensions (in.)			Dimensions (mm)		
Nominal Size (in.)	WP (psi)	Nominal Size (in.)	WP (psi)	Threaded	Studded							
				Size (in.)	Size (in.)	WP (psi)	A	B	C	A	B	C
11	3000	13-5/8	3000	2	2-1/16	5000	20.75	9.94	10.00	527.05	252.48	254.00
11	5000	11	3000	2	2-1/16	5000	26.25	12.88	10.00	666.75	327.15	254.00
11	5000	11	5000	2	2-1/16	5000	26.25	12.88	10.00	666.75	327.15	254.00
11	5000	13-5/8	3000	2	2-1/16	5000	26.00	13.44	10.00	660.40	341.38	254.00
11	5000	13-5/8	5000	2	2-1/16	5000	26.31	13.63	10.00	668.27	346.20	254.00
11	5000	16-3/4	3000	2	2-1/16	5000	26.25	13.12	10.00	666.75	333.25	254.00
11	10,000	11	10,000	2	2-1/16	10,000	31.25	15.38	10.00	793.75	390.65	254.00
11	10,000	13-5/8	5000	2	2-1/16	10,000	29.25	14.88	10.00	742.95	377.95	254.00
11	10,000	13-5/8	10,000	2	2-1/16	10,000	29.88	14.06	10.00	758.95	357.12	254.00
13-5/8	5000	13-5/8	5000	2	2-1/16	5000	26.50	13.25	12.62	673.10	336.55	320.55
13-5/8	5000	20-3/4	3000	2	2-1/16	5000	25.25	12.25	12.62	641.35	311.15	320.55

FZV FZ-C Casing Head Spools and Housings accept all three hangers in the FZ-C hanger family. FZ-C hangers offer a selection of manually energized seals or weight set seals, depending upon application requirements. They also offer a choice of one-piece and two-piece design so that use of FZ-C equipment for different applications can be varied by slip selection alone. FZ-C Hangers land on the single 45° shoulder in FZ-C bowls. Mandrel style casing hangers can also be supplied.

- ***FZ-C21 Casing Hanger***

  The FZ-C21 Casing Hanger is an independent slip and seal assembly. The slip assembly is latched around the casing and lowered into the casing head. The seal assembly is installed over the casing after it is cut-off. Pressure applied to the top of the seal assembly is transferred to the casing head, not the slips. This hanger can only be used in the FZ-C22 bowl profile (i.e. cannot be used with spools provided with lock screws).

- ***FZ-IC1P Casing Hanger***

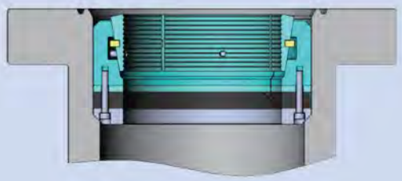
  The FZ-IC1P Casing Hanger is a one-piece, non-automatic, wrap-around hanger which is ideal for use where casing weight is insufficient to energize the hanger seal. The seal is energized using cap screws and can be replaced with rated load on the hanger. This hanger can only be used in the FZ-C22 bowl profile (i.e. cannot be used with spools provided with lock screws).

- ***FZ-C22 Casing Hanger***

  TheFZ-C22 Casing Hanger is a wrap-around hanger with an annulus seal which is energized by casing weight. The weight to energize the seal varies with the casing and slip size. The hanger uses a heavy duty latch and hinge design which creates a reliable, strong and stable hanger structure after closing. The hinge mechanism enables the hanger halves to pivot out of the way during "wrap-around. " Tapered "rough backs " allow a quick, secure bite of the casing, restrict continued downward movement, and prevent collapse of the casing. A guide ring maintains slip alignment during installation and operation.

FZ-C21 Casing Hanger

FZ-IC1P Casing Hanger

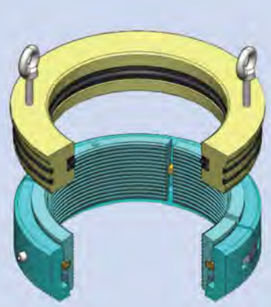


FZ-C22 Casing Hanger

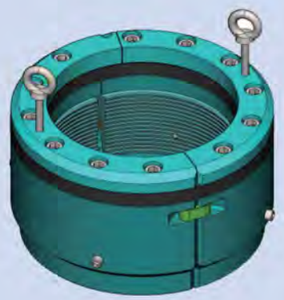
Casing Hangers for FZ-C Casing Head Housings and Spools

FZ-C Casing Hanger Comparison

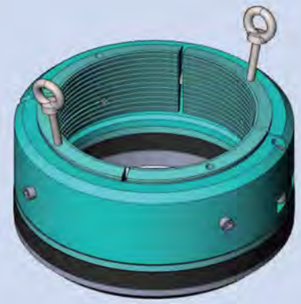
Model	Spool Compatibility	Hanger Type	Operating Temperature	Working Pressure(psi)	Rated Load Capacity	Method to Set Seal	Seal Replaceable with Load on Hanger
FZ-C21	FZ-C	Independent Slip and Seal Assembly	-20° to 150°F -29° to 65°C	5000	50% minimum pipe body yield	O-rings	Yes
FZ-IC1P	FZ-C	Wrap-around Slip and Seal Assembly	-20° to 150°F -29° to 65°C	10,000	50% minimum pipe body yield	Cap Screws	Yes
FZ-C22	FZ-C, FZ-CBP,FZ-CL	Wrap-around Slip and Seal Assembly	-20° to 150°F -29° to 65°C	10,000	50% minimum pipe body yield	Casing Weight	No



FZ-C21 Casing Hanger



FZ-IC1P Casing Hanger



FZ-C22 Casing Hanger

FZV offers a wide variety of tubing spools and hangers for all types of completions: single, dual, high pressure, and severe service.

The standard FZV FZ-TS bowl design is utilized in both the FZ-TS and FZ-TSD Tubing Spool designs. Use of this profile as standard allows FZV to offer the widest possible array of tubing hanger choices while minimizing tubing spool requirements.

Like our wellhead components, all FZV completion components meet or exceed API 6A specifications. Included in these products is a complete line of completion equipment and Christmas trees to suit all tubing programs for working pressures up to 15,000 psi. Equipment for surface applications range from low pressure, conventional equipment to systems for severe service and geothermal applications. For completion equipment not covered in this brochure, contact your FZV representative.

Selecting a Completion System

The first step in determining which FZV completion system is best for your application is to determine the tubing hanger style to be used. Each hanger profile is unique and is generally compatible with only a limited number of casing head/spool bowls.

Major Considerations for Tubing Hanger Selection

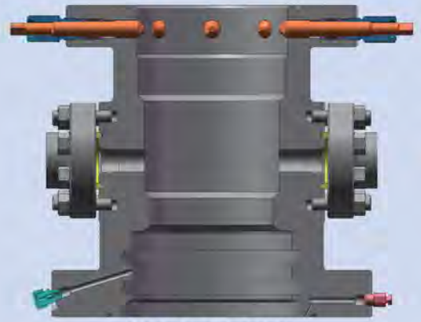
- **Completion Type**
  - Single . . . . . FZ-HT, FZ-T, FZ-TCL, FZ-SRL,FZ-CXS
  - Dual . . . . . .FZ-CDT
- **Tubing Hanger Type**
  - Coupling Assembly . . . . . .FZ-HT
  - Mandrel . . . . . .FZ-T, FZ-TCL, FZ-SRL,FZ- CXS
  - Split Dual Split Mandrel . . . . . FZ-CDT
- **Working Pressure**
  - 5000 psi . . . . . .FZ-CXS
  - 10,000 psi . . . . . .FZ-HT
  - 15,000 psi . . . . . .FZ-T,FZ- TCL, FZ--SRL,FZ- CDT
- **Annulus Seal Type**
  - Elastomer . . . . . .FZ-HT, FZ-T, FZ-TCL, FZ--SRL, ...FZ-CXS, FZ-CDT
- **Neck Seal Type**
  - Elastomer . . . . . .FZ-HT,FZ-TCL,FZ-CXS
  - Metal . . . . . .FZ-T, FZ--SRL,FZ-CDT
- **Control Line Capability**
  - No . . . . . .FZ-HT, FZ-T, FZ-CDT
  - Standard, continuous . . . . . .FZ-TCL, FZ--SRL
  - Optional, non continuous . . . . . .FZ-CXS

Tubing Spool, Tubing Hanger Compatibility Chart

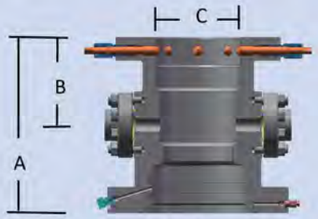
Tubing Hangers	Tubing Spools	
	FZ-TS	FZ-TSD
FZ-HT Tubing Hanger Assembly	●	●
FZ-T Tubing Hanger	●	●
FZ-TCL Tubing Hanger	●	●
FZ--SRL Tubing Hanger	●	●
FZ-CXS Tubing Hanger	●	●

Note: The symbol " • " is indicated as applicable to this specification model.

FZV Tubing Spools and Hangers



FZ-TS Tubing Spool



FZ-TS Spool

Dimensional Data:
A = Maximum height
B = Height from centerline of outlet to top of flange
C = Maximum through bore
Note1: All dimensions are estimates and finished dimensions may vary.
Note2: Spool through bore may be smaller in order to match casing ID.

FZ-TS Tubing Spool

The FZ-TS Tubing Spool is FZV's standard spool for single completions in 7-1/16 " and 9 " nominal top flange sizes. For 11 " and 13-5/8 " nominal tubing spools, the FZ-CL Spool is utilized. Features include:

- **Bowl Design**
  A straight bore with a single 45° shoulder design provides support for the tubing load and reduces the risk of bowl damage due to drill stem rotation. This design minimizes hoop load on the spool while maintaining high hanging capacity.
- **Tubing Hanger Compatibility**
  Accommodates a wide variety of tubing hangers for single completions including FZ-HT,FZ--SRL, FZ-T, FZ-TCL, and FZ-CXS designs. See pages 14 and 15 for more information.
- **Type DS Lock Screws**
  Reliable Type DS Lock Screws feature packing installed in front of the threads. This prevents contamination of threads by wellbore fluids and helps eliminate build-up of solids behind the screw. See page 21 for more information on Type DS Lock Screws.
- **Side Outlets**
  Available with line pipe threaded and studded outlets. Studded outlets are threaded for valve removal plugs.
- **Secondary Seals**
  FZ-TS Tubing Spools are available with Single and Double P, Single and Double FS secondary seals. See page 19 for more information.
- **Test and Injection Ports**
  All test ports are metal sealing and are designed to allow venting. Injection ports include buried check valves. See page 21 for more information.

FZ-TS Tubing Spool Dimensions

Bottom Flange		Top Flange		Side Outlets			Dimensions (in.)			Dimensions (mm)		
Nominal Size(in)	WP (psi)	Nominal Size(in)	WP (psi)	Threaded Size(in)	Studded Size(in)	Studded WP(psi)	A	B	C	A	B	C
11	2000	7-1/16	3000	2	2-1/16	3000	20.88	10.30	6.81	530.23	261.62	173.04
11	3000	7-1/16	3000	2	2-1/16	3000	20.88	10.30	6.81	530.23	261.62	173.04
11	3000	7-1/16	5000	2	2-1/16	5000	22.00	11.44	6.81	558.80	290.58	173.04
11	3000	9	5000	2	2-1/16	5000	22.56	12.10	8.22	573.09	307.34	208.79
11	3000	7-1/16	5000	2	2-1/16	5000	25.00	11.44	6.81	635.00	290.58	173.04
11	5000	7-1/16	10,000	2	2-1/16	10,000	25.00	11.85	6.77	635.00	300.99	171.96
11	5000	9	5000	2	2-1/16	5000	22.56	11.13	8.22	573.09	282.70	208.79
11	10,000	7-1/16	10,000	2	2-1/16	10,000	25.50	11.50	6.77	647.70	292.10	171.96

FZ-HT Tubing Hanger Assemblies

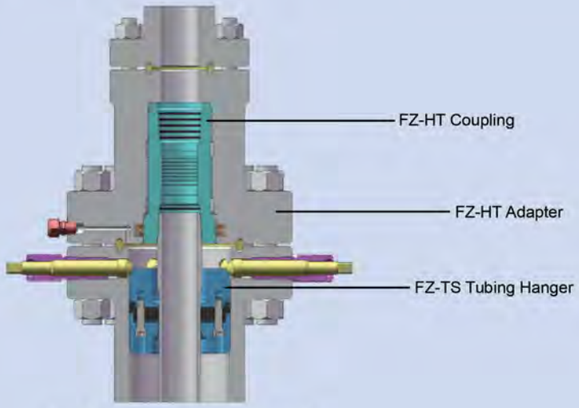
The HT Tubing Hanger Assemblies are all single completion hanger assemblies for use in either the FZ-TS Tubing Spool or the FZ-TSD Tubing Spool. The designs are made up of a coupling, adapter and Type C wrap-around style casing hanger. The assemblies are rated up to 10,000 psi WP and are simple and quick to install without special running tools.

- **FZ-HT Couplings**
  The designs include coarse ACME threads which make up easily with minimum risk of damage. Self-energizing seals isolate threads from well fluids, allowing testing of flange ring gasket.
- **FZ-HT Adapters**
  The adapter top and bottom connections are normally configured with a flanged bottom and studded top. The designs provides a test port for verification of adapter flange connection and coupling seal integrity.
- **FZ-TS Tubing Hanger**
  The FZ-TS Tubing Hanger is a wrap-around slip and seal assembly. The annulus seal is energized by tubing weight or tiedown screws and controls pressure in the casing annulus during installation of the Christmas tree.

Comparison of Tubing Hangers for Single Completions

Model	Spool Compatibility	Hanger Type	Working Pressure (psi)	Method to Set Seal	Annulus Seal	Neck Seal	Control Line	BPV Preparation
FZ-HT	FZ-TS, FZ-TSD	Coupling Assembly with Type C Wrap-Around Hanger	10,000	Radial Interference	Elastomer	Elastomer	Not Available	Standard
FZ-T	FZ-TS, FZ-TSD	Mandrel	15,000#	Lock Screws	Elastomer	Elastomer	Not Available	Standard
FZ-TCL	FZ-TS, FZ-TSD	Mandrel	15,000#	Lock Screws	Elastomer	Elastomer	Continuous	Standard
FZ-SRL	FZ-TS, FZ-TSD	Mandrel	15,000	Lock Screws	Elastomer	Metal	Continuous	Standard
FZ-CXS	FZ-TS, FZ-TSD	Mandrel	15,000	Lock Screws	Elastomer	Elastomer	Optional	Standard

Note: # Not recommended for use in 7-1/16 " 10,000 psi Type FZ-TS Spools.

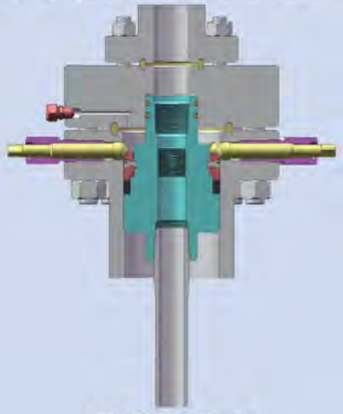


FZ-HT Tubing Hanger Assembly

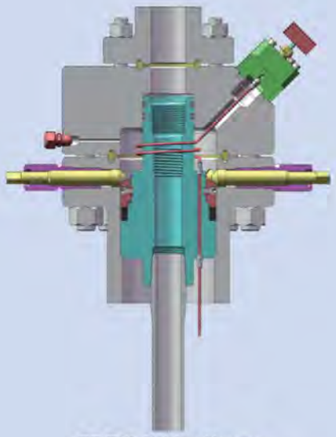
FZ-T, FZ-TCL, FZ--SRL and FZ-CXS Tubing Hangers

The FZ-T, FZ-TCL, FZ-SRL and FZ-CXS Tubing Hangers are all single completion, mandrel-type hangers for use in either the FZ-TS Tubing Spool or the FZ-TSD Tubing Spool.

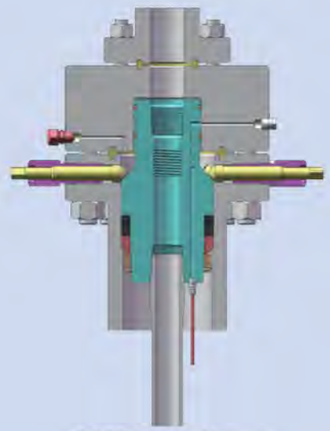
- **FZ-T Tubing Hanger**
  The T Tubing Hanger withstands stress of high pressure, corrosive/erosive elements associated with well flow. Its flexible neck maintains the metal seal despite thermal or pressure cycling.
- **FZ-TCL Tubing Hanger**
  The FZ-TCL Tubing Hanger withstands stress of high pressure, corrosive/erosive elements associated with well flow. A control line exit block is available in either a bull plug style or block needle valve style.
- **FZ-SRL Tubing Hanger**
  The FZ-SRL Tubing Hanger incorporates a pressure energized SRL neck seal which accommodates vertical movement in the tubing hanger during BOP testing. A control line exit block is available in either a bull plug style or block needle valve style. The FZ-SRL hanger should be used in 7-1/16 " 10,000 psi Type FZ-TS Tubing Spools.
- **FZ-CXS Tubing Hanger**
  The FZ-CXS Tubing Hanger includes two neck seals which may be used to isolate one control line.



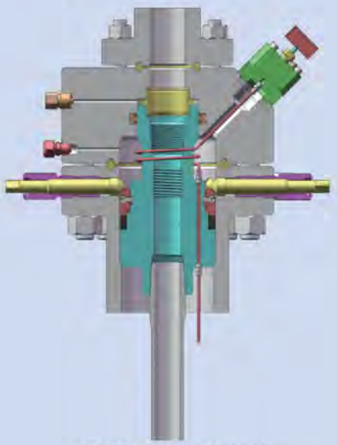
FZ-T Tubing Hanger



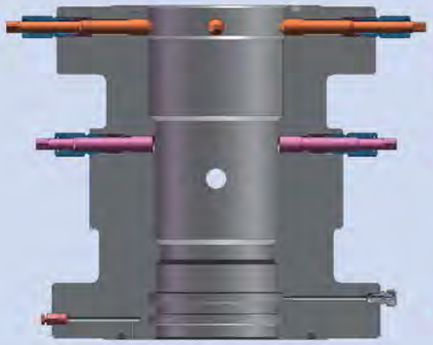
FZ-TCL Tubing Hanger



FZ-CXS Tubing Hanger



FZ-SRL Tubing Hanger

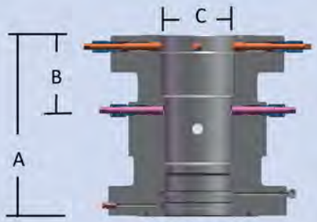


FZ-TSD Tubing Spool

FZ-TSD Tubing Spool

The FZ-TSD Tubing Spool features the same bowl as the FZ-TS Tubing Spool but incorporates alignment pins for dual completions. The FZ-TSD can also be used for single completions by retracting the alignment pins. Features include:

- **Bowl Design**
  A straight bore with a single 45° shoulder design provides support for the tubing load and reduces the risk of bowl damage due to drill stem rotation. This design minimizes hoop load on the spool while maintaining high hanging capacity.
- **Tubing Hanger Compatibility**
  Accommodates a wide variety of tubing hangers for single completions including FZ-HT, FZ-SRL,FZ-T, FZ-TCL, and FZ-CXS designs for single completions and the FZ-CDT hangers for dual completions.
- **Type DS Lock Screws**
  Reliable Type DS Lock Screws feature packing installed in front of the threads. This prevents contamination of threads by wellbore fluids and helps eliminate build-up of solids behind the screw. See page 21 for more information.
- **Alignment Pins**
  Alignment pins for dual completions are located below the load shoulder to avoid test plug interference and provide alignment without reducing load shoulder capacity.
- **Side Outlets**
  Available with line pipe threaded and studded outlets. Studded outlets are threaded for valve removal plugs.
- **Secondary Seals**
  FZ-TSD Tubing Spools are available with Single and Double P, Single and Double FS secondary seals. See page 19 for more information.
- **Test and Injection Ports**
  All test ports are metal sealing and are designed to allow venting. Injection ports include buried check valves. See page 21 for more information.



FZ-TSD Spool

Dimensional Data:
A = Maximum height
B = Height from center line of outlet to top of flange
C = Maximum through bore
Note1: All dimensions are estimates and finished dimensions may vary.
Note2: Spool through bore may be smaller in order to match casing ID.

FZ-TSD Tubing Spool Dimensions

Bottom Flange		Top Flange		Side Outlets			Dimensions (in.)			Dimensions (mm)		
Nominal Size(in)	WP (psi)	Nominal Size(in)	WP (psi)	Threaded	Studded							
				Size(in)	Size(in)	WP(psi)	A	B	C	A	B	C
11	2000	7-1/16	3000	2	2-1/16	3000	20.88	10.30	6.81	530.23	261.62	173.04
11	3000	7-1/16	3000	2	2-1/16	3000	20.88	10.30	6.81	530.23	261.62	173.04
11	3000	7-1/16	5000	2	2-1/16	5000	22.00	11.44	6.81	558.80	290.58	173.04
11	3000	9	5000	2	2-1/16	5000	22.56	12.10	8.22	573.09	307.34	208.79
11	3000	7-1/16	5000	2	2-1/16	5000	25.00	11.44	6.81	635.00	290.58	173.04
11	5000	7-1/16	10,000	2	2-1/16	10,000	25.00	11.85	6.77	635.00	300.99	171.96
11	5000	9	5000	2	2-1/16	5000	22.56	11.13	8.22	573.09	282.70	208.79
11	10,000	7-1/16	10,000	2	2-1/16	10,000	25.50	11.50	6.77	647.70	292.10	171.96

Tubing Hangers for Dual Completions

FZ-CDT Tubing Hangers

FZV's dual completion tubing hangers include the designs: the FZ-CDT Tubing Hanger. These hangers are used with the FZ-TSD Tubing Spool.

These hangers are split dual mandrel style hangers which can be run and pulled independently. Alignment slots located below the load shoulder protect the alignment pins and allow maximum load capacity.

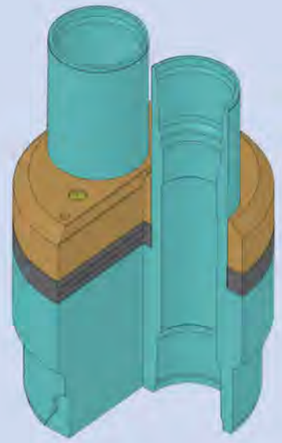
Note:This section mainly introduces the FZ-CDT Tubing Hanger.

FZ-CDT Tubing Hanger

The FZ-CDT Tubing Hanger is a one-piece mandrel style hanger with a tapered metal-to-metal neck seal for superior sealing up to 15,000 psi.

Basic Parameters of Tubing Hangers for Dual Completions

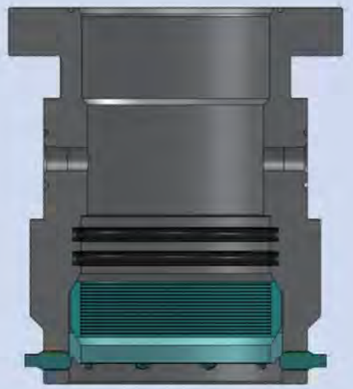
Model	Spool Compatibility	Hanger Type	Working Pressure (psi)	Method to Set Seal	Annulus Seal	Neck Seal	Control Line	BPV Preparation
FZ-CDT	FZ-TSD	Split Dual Mandrel (two piece)	15,000	Lock Screws	Elastomer	Metal	Not Available	Standard



FZ-CDT Tubing Hanger

Casing Head Housing Bottom Connection Options

- **Slip-On Weld Casing Connection System**
  For larger casing sizes, the O-ring seal option is not available. Slip-on weld connections include a 1/2 " line pipe test port to validate the integrity of the welds.
- **Slip Lock Casing Connection System**
  The Slip Lock Casing Connection System is a simple slip mechanism which reduces installation time because welding is eliminated. Sealing is achieved with elastomeric P Seals. The Slip Lock system can be used for working pressures up to 10,000 psi and is reusable for exploration wells.



Slip Lock Casing Connection

- **Casing Box Thread Casing Connection System**
  Casing threads are intended for use where threaded connections are specified for casing heads. In this case, the lower connection outside diameter is standardized where possible to allow use of raw material for either FZ-S or FZ-C style heads.

Slip-On Weld without O-Ring

Casing Box Thread

Secondary Seals

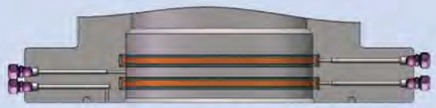
FZV offers a wide range of secondary seals for use in casing and tubing spools. These secondary seals are installed in the bottom of spools with corresponding preps.

- **Single and Double P Seals**
  The Single and Double P Seals are ideal for use as crossovers where moderately severe service is expected. Each P Seal consists of a large elastomer seal with separate anti-extrusion rings. Both Single and Double P Seals are sized to accommodate the tolerance range of casing and may be used on machined hanger necks. Double P Seals can be tested with pressure applied between the seals.
- **Single and Double FS Seals**
  Single and Double FS Seals are interference-fit, elastomeric seals for use with casing sizes 13-3/8 " and smaller. They are ideal for use as crossovers where moderately severe service is expected. Both Single and Double FS Seals are sized to accommodate the tolerance range of casing and may be used on machined hanger necks. Double T Seals can be tested with pressure applied between the seals.

Secondary Seals Comparison Chart

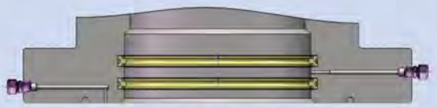
Model	Casing Spool Compatibility	Tubing Spool Compatibility	Maximum Service Rating	Working Pressure (psi)	Seal Type	Means of Energizing Seal
Single P Seal	FZ-S,FZ-SBP,FZ-SL, FZ-C, FZ-CBP,FZ-CL	FZ-TS,FZ-TSD	Moderately Severe	10,000	Elastomer	Plastic Packing
Double P Seal	FZ-S, FZ-SBP,FZ-SL, FZ-C, FZ-CBP,FZ-CL	FZ-TS,FZ-TSD	Moderately Severe	15,000	Elastomer	Plastic Packing
Single FS Seal	FZ-S, FZ-SBP,FZ-SL, FZ-C, FZ-CBP,FZ-CL	FZ-TS,FZ-TSD	Moderately Severe	5000	Elastomer	Radial Interference
Double FS Seal	FZ-S, FZ-SBP,FZ-SL, FZ-C, FZ-CBP,FZ-CL	FZ-TS,FZ-TSD	Moderately Severe	5000	Elastomer	Radial Interference

Single P Seal



Double P Seal

Single FS Seal



Double FS Seal

P Seal

P seal is constructed from an elastomer with back up rings for anti-extrusion. Energized by the injection of sealant, it is a static seal that is used to seal rough casing and tubing. Backup rings are available in Mesh Stainless Steel or Solid Carbon Steel.

The standard P Seal is a one-piece molded seal with molded-in anti-extrusion part. This design enhances assembly by eliminating the loose anti-extrusion devices used in other designs.

P seal is installed in the lower sealing area of casing spool or tubing head. It is used to provide redundant well safety between casing annulus and flange connection of casing head casing spool or tubing head.In some cases, it can also provide special sealing capacity for fracturing equipment.

Advantages:

- Anti-high pressure
- Anti-extrusion

P Seal

FS Seal

The FS seal is a relatively large cross section spring energized elastomer casing and tubing hanger seal for wellheads that always has the springs on the internal surface.

FS seals are used against rough surface finish and wider dimensional and geometrical tolerances of casing and tubing.Sealing materials utilized for wellheads need to withstand pressures as high as 20000 psi, and temperature from -46°C to +177°C(-20°F to +350°F).FS seal material includes NBR, HNBR,FKM with 2 integral anti-extrusion springs.

FS seal is a custom designed spring energized elastomer seal, which combines the advantages of the overall support assembly and the flexibility of elastomer seal, and can provide the maximum extrusion resistance in the demanding high-pressure sealing environment, FS seal is ideal for many chemical processing, chemical transportation and oil and gas applications, such as oilfield casing and tubing.

Advantages:

- Improve equipment reliability
- Extend seal and equipment service life
- Reduce installation time, delay damage
- Protect system from loose materials
- Material is certified with NORSOK M710 H_2S immersion test.
- Rapid gas decompression resistance

FS Seal

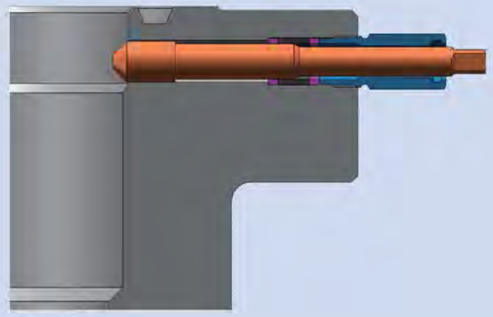
Working Conditions

Model	Working Pressure (psi)	Temperature Range	Medium	Material
P Seal	0~20,000	LU,PU,PX	Oil ,Water,Gas,H_2S,CO_2,etc.	NBR/HNBR/FKM+SS316
FS Seal	0~20,000	LU,PU,PX	Oil ,Water,Gas,H_2S,CO_2,etc.	NBR/HNBR/FKM+SS316/INCONEL

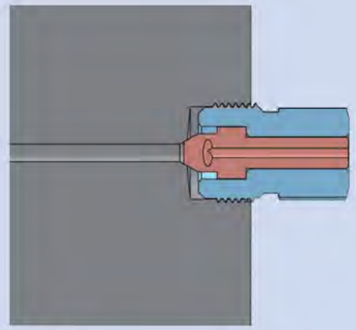
Auxiliary Equipment

Lock Down Screws, Test Ports and Injection Ports

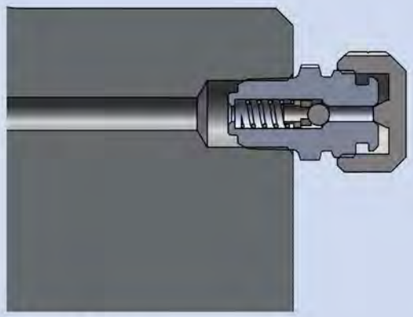
- **DS Lock Screw**
  All FZV spools and housings utilize DS Lock Screws. This design features packing in front of the threads to help prevent contamination of the threads by wellbore fluids and eliminate build-up of solids behind screw which could prevent proper retraction. An external oil seal protects threads from atmospheric corrosion. DS Lock Screws are field replaceable.
- **Test Ports**
  All test ports in FZV conventional wellhead equipment are the API 6A Type II metal seal design for safety and reliability. These ports are applicable to all pressure ratings and can be safely vented.
- **Injection Ports**
  For casing and tubing spools which require injection of sealant in order to energize or re-energize the secondary seal, two styles of fittings are available. Each style has a buried ball check. For applications 10,000 psi WP and below, the port features a simple plug with a 1" NPT thread. For working pressures above 10,000 psi WP, plugs incorporate a two-piece plug with a pressure vent.



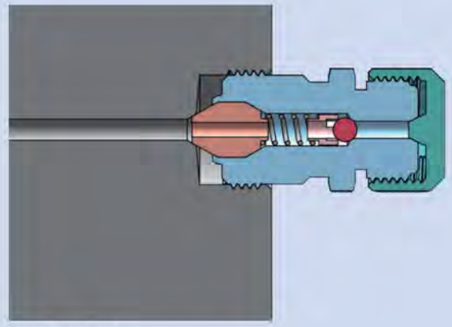
DS Lock Screw



Test Port



Injection Port
(10,000 psi WP and Below)



Injection Port
(15,000 psi WP and Above)

The Wellhead and Tree Systems

We have Designed And Manufactured

- **Multi-bowl wellhead system + Tree with Safety Valve with high pressure and low pressure protection system**
- **Operation of Basic Safety System**
- **Multi-bowl wellhead system + Tree**
- **Conventional wellhead system + Block Tree**
- **Dual Completion Block Tree**

Multi-bowl wellhead system + Tree with Safety Valve with high pressure and low pressure protection system

Multi-bowl wellhead systems are time-saving two-stage wellhead systems designed specifically for surface Applications.The multi-bowl design enables running two casing strings in same bowl size of casing head housing and tubing spool housing.The Multi-bowl system has a working pressure up to 10,000 psi and can be used in moderate to severe service conditions.

Pneumatic diaphragm safety valve with HI-LO system (high and low pilot sensors with remote operation and data transmission via Ethernet).This safety system allow detect well pressure from choke valve down stream,high pressure shut-in and low pressure shut-in, to protect down stream pipe lines and equipment.

Applications

- Onshore Drilling and Production
- Large-bore operations
- Production by using Electric Submersible Pump

Advantages

1.Compatibility with mandrel casing hangers, emergency slip-type hangers, or a combination of both.

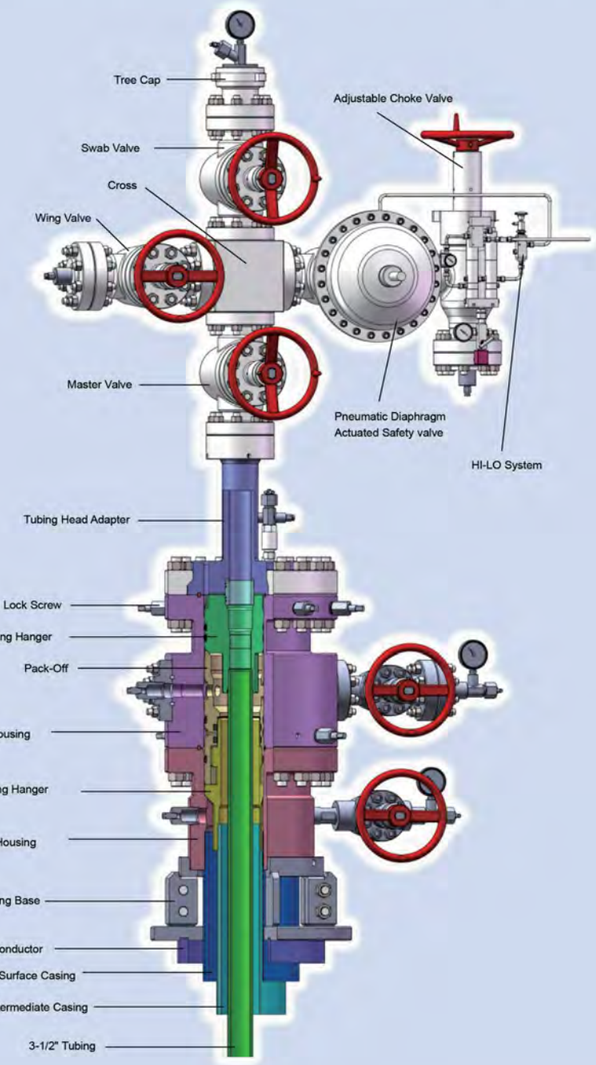
2.Availability with Slip-On weld connection and Slip Lock connection.

3.Full range of completion possibilities, including Multi-bowl and FZ-C conventional wellhead systems.

4.Ability to run two strings of casing through the diverter, saving a rig-up and rig-down cycle.

5.High pressure and low pressure shut in protection for down stream pipe lines and equipment.

Pneumatic Diaphragm Actuated Safety valve
&HI-LO System



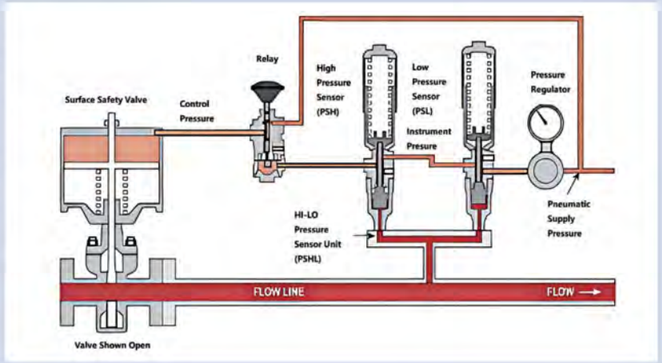
Relevant Parameters

Casing Program	Main Bore & Bypass Bore	Working Pressure (psi)	Material Classes	Temperature Range	Specification Level	Performance Level
20"×13-3/8"×9-5/8"×3-1/2 "	3-1/8"	3000/5000	EE	LU	PSL 2	PR 2

Operation of Basic Safety System

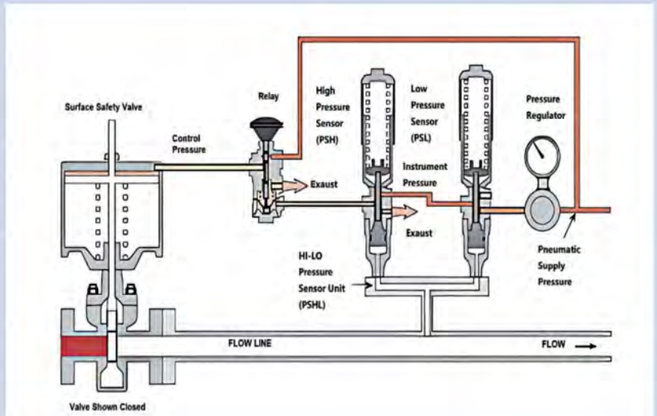
Normal Operation

The normal operation schematic illustrates a typical single point high-low safety system.The high-low sensor(PSHL) is shown installed on a flow line with the flow line pressure within its predetermined working pressure range.In this position,the instrument pressure slows,passes through the sensors(PSHL),and acts against the relay piston.This action shifts the relay to its open position allowing control pressure to pass to the surface safety valve(SSV) actuator,and open the SSV valve.The surface safety valve will remain open until an abnormal pressure condition occurs in the flow line.



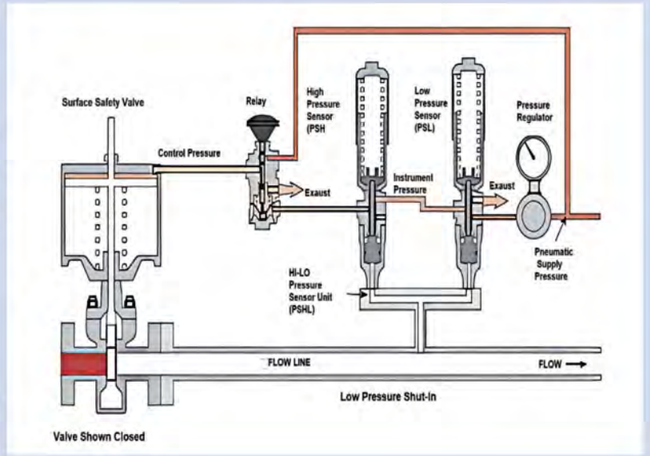
High Pressure Shut-In

The high pressure shut-in schematic illustrates a typical single point high-low safety system which has reacted to a predetermined undesirable event of a high pressure condition in the flow line.In this position,the high pressure sensor(PSL) shifts to its block and bleed position, blocking instrument pressure,and bleeding pressure from the relay piston.This action allows the relay to shift to block control pressure and bleed pressure from the SSV actuator.Flow line pressure,acting against the SSV actuator shat,closes the surface safety valve.The safety shut-in system may be locked out by the relay lockout feature,requiring manual reset to place the system back into service.



Low Pressure Shut-In

The low pressure shut-in schematic illustrates a typical single point high-low safety system which has reacted to a predetermined undesirable event of a low pressure condition in the flow line.In this position,the low pressure sensor(PSL) shifts to its block and bleed position, blocking the instrument pressure and bleeding pressure from the relay piston.This action allows the relay to shift to block control pressure and bleed pressure from the SSV actuator. Flow line pressure acting against the SSV actuator chat,closes the SSV.The safety shut-in system may be locked out by the relay lockout feature requiring manual reset to put the system back in service.



Multi-bowl wellhead system + Tree

Multi-bowl wellhead systems are time-saving two-stage wellhead systems designed specifically for surface Applications.The multi-bowl design enables running two casing strings in same bowl size of casing head housing and tubing spool housing.The Multi-bowl system has a working pressure up to 10,000 psi and can be used in moderate to severe service conditions.

Applications

- Onshore Drilling and Production
- Large-bore operations
- Production by using Electric Submersible Pump

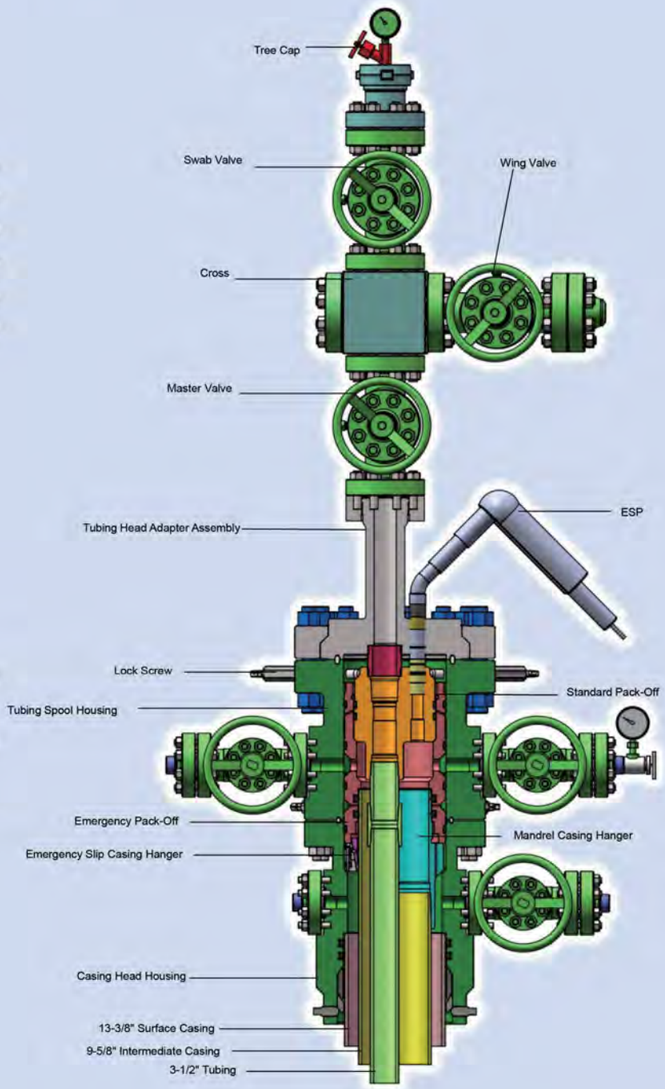
Advantages

1.Compatibility with mandrel casing hangers, emergency slip-type hangers, or a combination of both.

2.Availability with Casing Box Thread connection and Slip-on weld connection.

3.Full range of completion possibilities, including Multi-bowl and FZ-C conventional wellhead systems.

4.Ability to run two strings of casing through the diverter, saving a rig-up and rig-down cycle.



Relevant Parameters

Casing Program	Working Pressure (psi)	Material Classes	Temperature Range	Specification Level	Performance Level
20 " ×13-3/8 " ×9-5/8 " ×3-1/2 "	3000/5000	EE	LU	PSL 3	PR 2

Conventional wellhead system + Block Tree

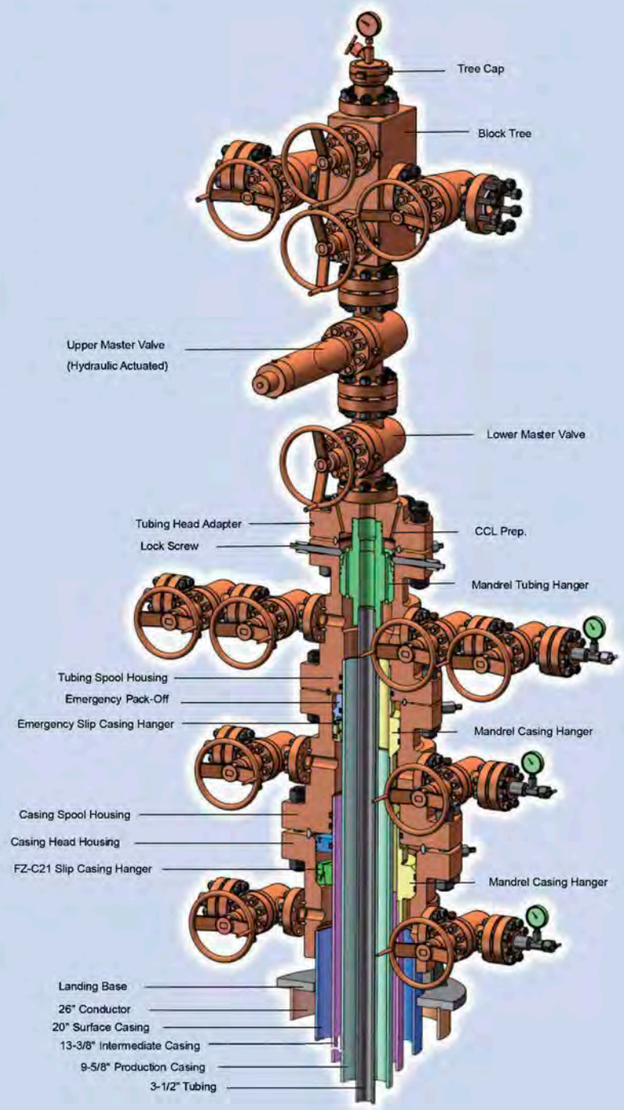
Conventional wellhead system product line incorporates a wide range of slip-type and mandrel casing hangers and pack-offs, including the automatic slip-type hanger, which uses casing weight to energize the annular seal. Rated to 10,000 psi, conventional wellhead system can thus be configured to meet many service conditions. It incorporates the lower casing head housing and hanger as well as the subsequent casing head spools and hangers. It is compatible with all our tubing spool and hanger configurations.

Applications

- Onshore Drilling and production

Advantages

1. Straight-bore design with a 45° load shoulder.
2. Working pressure up to 10,000 psi [68.9 MPa].
3. Operating temperatures from -20 to 350 degF [-29 to 180 degC].
4. Hang off capacity up to 50% of pipe body yield.
5. Casing head housings and spools: FZ-S and FZ-C.
6. Casing hangers: FZ-SB3,FZ-C21,FZ-IC1P and FZ-C22 slip and seal assemblies.
7. Optional secondary seals and pack-off bushings.
8. Interchangeability.
9. Compatibility with many configurations.
10. The block tree incorporate the two valves into a solid body,the number of potential leak path connections as well as the tree height are reduced.



Relevant Parameters

Casing Program	Working Pressure (psi)	Material Classes	Temperature Range	Specification Level	Performance Level
26 " × 20 " ×13-3/8 " ×9-5/8 " ×4-1/16 "	10,000	FF	LU	PSL 3	PR 2

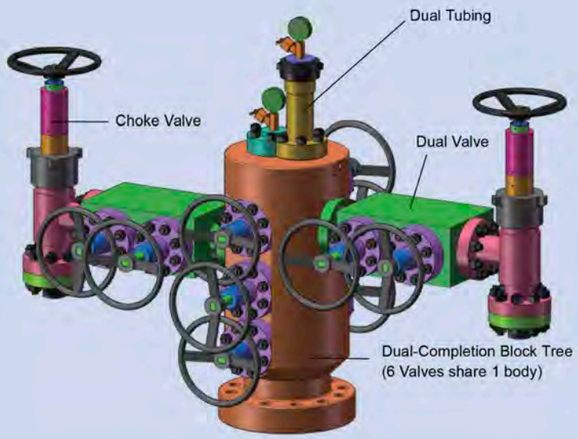
This Dual-Completion block tree enables dual completion from a single slot,saving individual well cost and reducing platform size.The tubing Head Adapter Bottom flange sizes are available in 9 inches, 11 inches, and 13-5/8 inches nominal sizes and working pressures up to 10,000 psi.

Applications

- Offshore completion and production

Features and Benefits

1. offers a compact, safe and reliable solution to multiple completion projects.
2. Fewer connections in the system results in significant rig time reduction.
3. Reduced envelope dimension allows for smaller platform requirement.
4. Various casing separation methods are available to meet specific drilling requirement.
5. Full metal to metal (MTM) seal completion is available.
6. Available in 2-in-1 and 3-in-1 configurations.
7. By incorporating the master and swab valve and wing outlets into a solid body, the number of potential leak path connections as well as the tree height are reduced. This allows for easier installation and valve operation, and can also allow the use of a second actuated swab valve, increasing flow control while maintaining a reasonable overall height.
8. Manufacturing meets API Spec. 6A standards, and can be specified to meet at the material class,temperature class, and PSL level requirements of this specification.



Dual Completion Block Tree

FANGZHENG VALVE GROUP SHANGHAI CO.,LTD.

Address:No.885 Yuegong Road, Jinshan Industrial Zone, Jinshan District,Shanghai,
P.R. China,Post code:201506.

Tel: +86-21-67276862;+86-21-67276869.

E-mail:fzvalve@fzvgroup.com

Website :http://www.fzvgroup.com

Distributors/Agents

GLOBAL SupplyLine Strategic FZV Partner

Global Supply Line are sole agents Australia, NZ & PNG, large stock range, shipping worldwide. Stock lists at our website: www.globalsupplyline.com.au
Contact us: sales@globalsupplyline.com.au