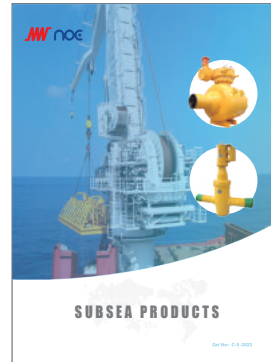
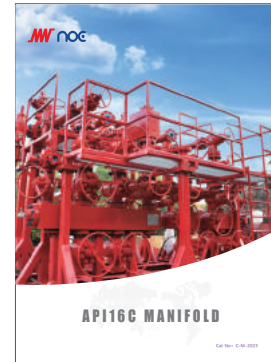




Product Summary



Subsea Products



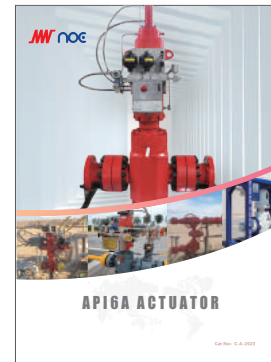
MANIFOLD



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Fracturing Products



ACTUATOR



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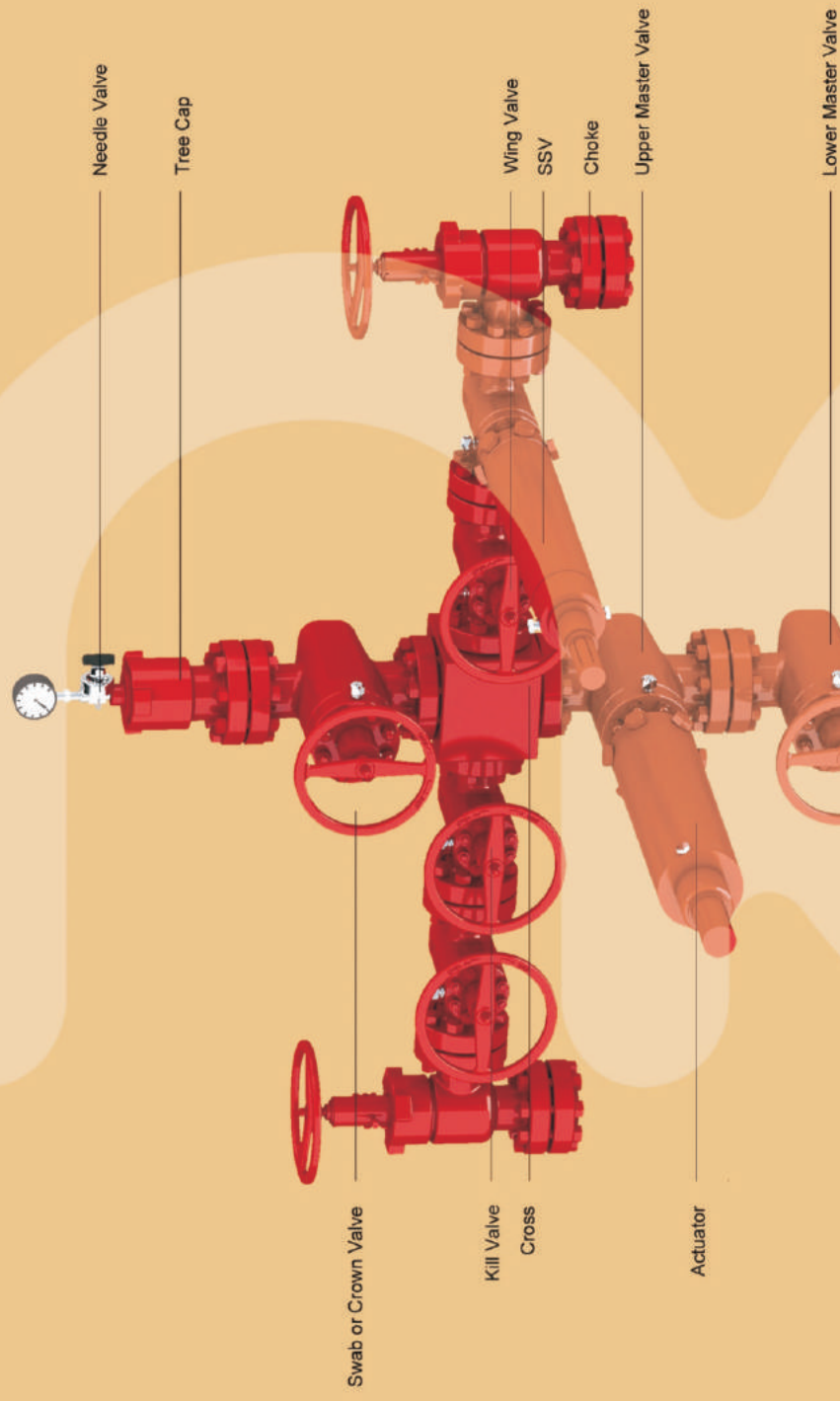
WEBSITE



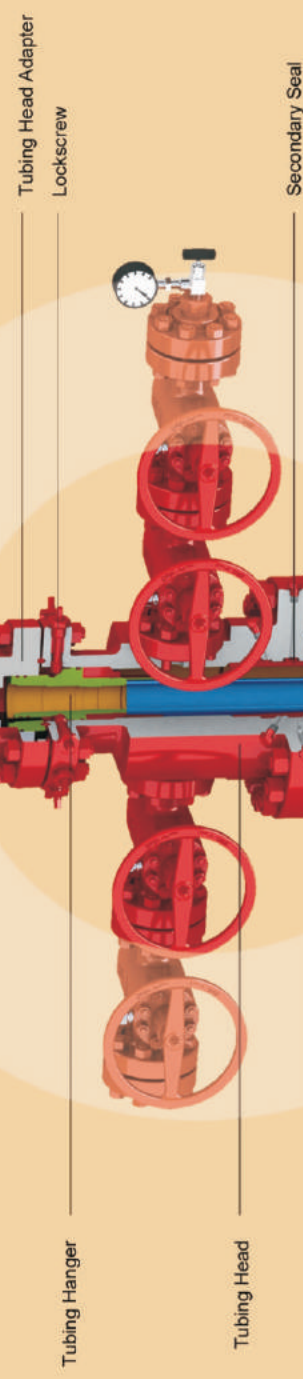
WECHAT

Wellhead & Christmas Tree

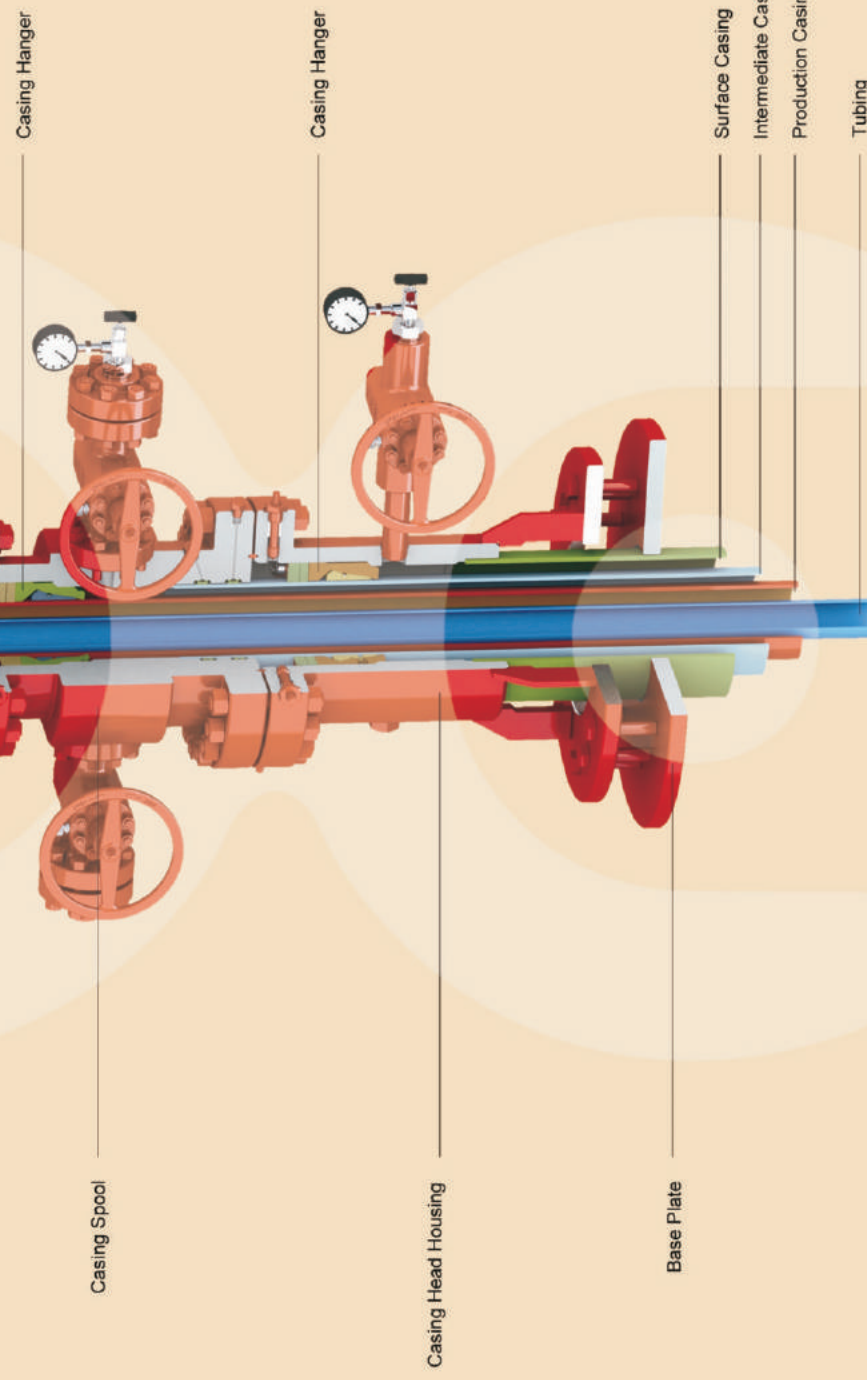
Christmas Tree



Tubing



Casing



Production Specification Level
PSL1
PSL2
PSL3
PSL3G
PSL4

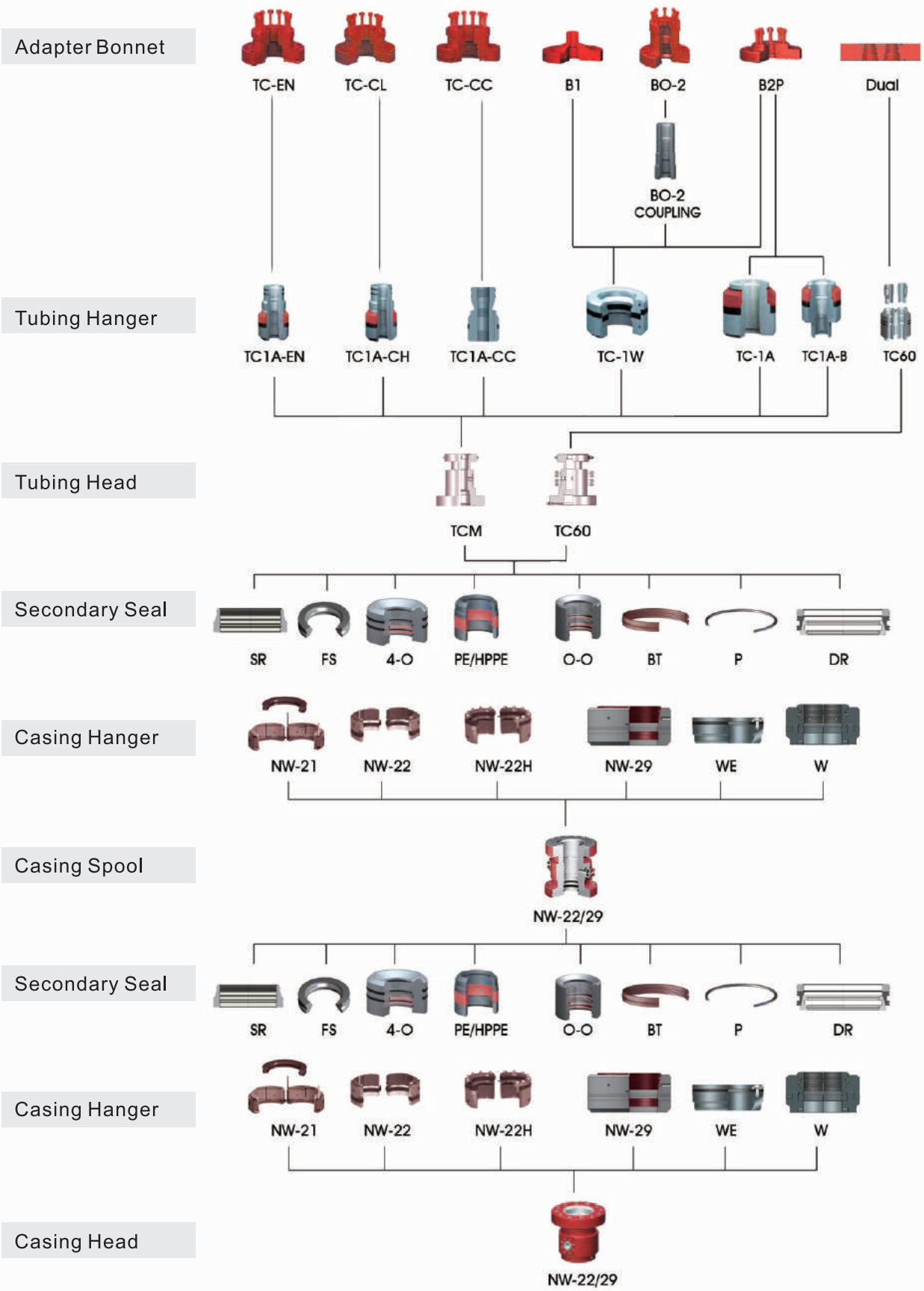
Performance Requirement Level
PR1
PR2

Material Class
AA
BB
CC
DD
EE
FF
HH

Working Pressure		
psi	Mpa	
2M	2,000	13.8
3M	3,000	20.7
5M	5,000	34.5
10M	10,000	69
15M	15,000	103.5
20M	20,000	138

Temperature Class		
(F)	(C)	
K	-75 to 180	-60 to 82
L	-50 to 180	-46 to 82
N	-50 to 140	-46 to 60
P	-20 to 180	-29 to 82
S	0 to 140	-18 to 60
T	0 to 180	-18 to 82
U	0 to 250	-18 to 121
V	35 to 250	2 to 121
X	0 to 350	-18 to 180
Y	0 to 650	-18 to 345

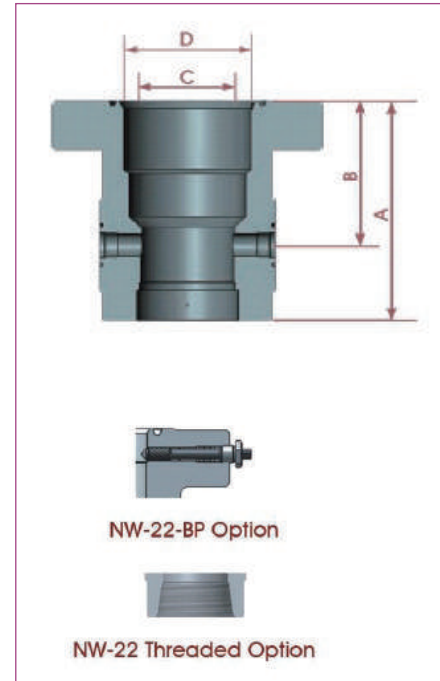
Wellhead Components Sheet



Casing Heads

NW22 Casing Head

NW-22 Casing heads have a straight bore bowl design which avoids damage to sealing areas by drilling tools and prevents test plug and bowl protector wedging problems when pressure is applied. This straight bore design also reduces maintenance costs and allows suspension of heavy casing loads. NW-22 Casing heads provide interchangeability of casing hangers NW-21 and NW-22. If a bowl protector were required during the drilling process, using an NW-22-BP casing head including lock down screws in the upper flange would be recommended. Bottom connections can be furnished threaded or slip-on for welding.



Flange Size	Working Pressure	Casing Size	Outlets	A	B	C	D	Weight
in	psi	in		in	in	in	in	lb
11	3,000	8-5/8	2-1/16" Std	19	11	8	10-7/8	748
11	3,000	8-5/8	2" LP	17-7/8	11	8	10-7/8	600
11	5,000	8-5/8	2-1/16" Std	21	13-3/4	8	10-7/8	788
11	5,000	8-5/8	2" LP	17-7/8	11-3/4	8	10-7/8	740
11	3,000	9-5/8	2-1/16" Std	19	11	9	10-7/8	726
11	3,000	9-5/8	2" LP	17-7/8	11-3/4	9	10-7/8	571
11	5,000	9-5/8	2-1/16" Std	21	13-3/4	9	10-7/8	915
11	5,000	9-5/8	2" LP	20-1/2	11-3/4	9	10-7/8	760
11	3,000	10-3/4	2" LP	17-7/8	11-3/4	10	10-7/8	563
13-5/8	3,000	11-3/4	2" LP	18	11	11	13-1/2	638
13-5/8	3,000	13-3/8	2" LP	20-7/8	13	12-1/2	13-1/2	638
13-5/8	3,000	13-3/8	2-1/16" Std	19	12	12-1/2	13-1/2	744
13-5/8	5,000	13-3/8	2-1/16" Std	20-1/2	12-1/2	12-1/2	13-1/2	1250
13-5/8	5,000	13-3/8	2" LP	19	12	12-1/2	13-1/2	1078
20-3/4	3,000	20	2" LP	19	12	19-1/8	20-1/8	1540
21-1/4	2,000	20	2" LP	19	12	19-1/8	20-1/8	1232

NW29 Casing Head

NW-29 casing heads are based on the same reliable design as the NW-22 with exception that the bowl is longer, which permits the acceptance of the minimum deflection NW-29 casing hanger with larger load capacity for deeper drilling.

Flange Size	Working Pressure	Casing Size	Outlets	A	B	C	D	Weight
in	psi	in		in	in	in	in	lb
11	3,000	8-5/8	2-1/16" Std	21	13	8	10-7/8	785
11	3,000	8-5/8	2" LP	20-1/2	13-5/8	8	10-7/8	644
11	5,000	8-5/8	2-1/16" Std	21-1/2	14-1/4	8	10-7/8	799
11	5,000	8-5/8	2" LP	20-1/2	14-1/4	8	10-7/8	793
11	3,000	9-5/8	2-1/16" Std	21	13	9	10-7/8	760
11	3,000	9-5/8	2" LP	20-1/2	13-5/8	9	10-7/8	623
11	5,000	9-5/8	2-1/16" Std	21-1/2	14-1/4	9	10-7/8	926
11	5,000	9-5/8	2" LP	20-1/2	14-1/4	9	10-7/8	758
11	3,000	10-3/4	2" LP	19-1/4	13-1/8	10	10-7/8	575
13-5/8	3,000	11-3/4	2" LP	20-7/8	13	11	13-1/2	695
13-5/8	3,000	13-3/8	2" LP	20-7/8	13	12-9/16	13-1/2	641
13-5/8	3,000	13-3/8	2-1/16" Std	21-1/2	14-1/2	12-1/2	13-1/2	794
13-5/8	5,000	13-3/8	2-1/16" Std	22-1/2	14-1/2	12-1/2	13-1/2	1328
13-5/8	5,000	13-3/8	2" LP	20-7/8	13	12-1/2	13-1/2	1113
20-3/4	3,000	20	2" LP	20-1/2	12-3/4	19-1/8	20-1/8	1606
21-1/4	2,000	20	2" LP	20-1/2	12-3/4	19-3/16	20-1/8	1278

NW-21 Casing Hanger

NW-21 is a slip type, wrap-around hanger for shallow wells with light casing loads (maximum working pressure is 5000psi). The NH packoff is designed to be installed after slips are landed and casing has been suspended and cut off. The NH packoff serves as the primary seal and protects the slips from test pressure. The NH packoff can't be used in a casing head or casing spool with lock screws, the lock screws intersect OD seal of the packoff. The hanger is capable of supporting up to 50% of the pipe body yield at rating temperatures

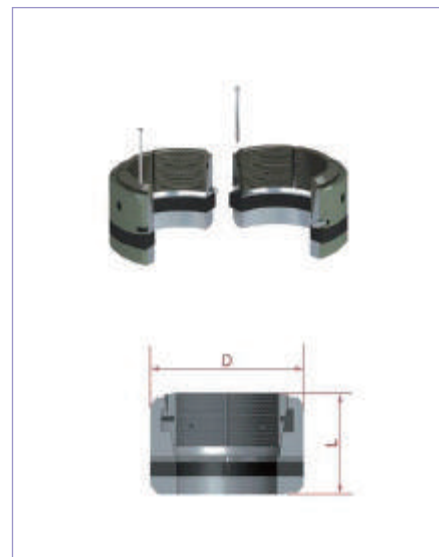


Casing Hangers

Flange Size	Casing Size	D	L	Weight
in	in	in	in	lb
11	4-1/2	10-13/16	4-1/16	94
11	5-1/2	10-13/16	4-7/16	85
11	7	10-13/16	4-15/32	67
11	7-5/8	10-13/16	4-13/16	63
13-5/8	4-1/2	13-7/16	4-3/16	175
13-5/8	5-1/2	13-7/16	4-3/16	145
13-5/8	7	13-7/16	4-3/16	123
13-5/8	7-5/8	13-7/16	4-3/16	118
13-5/8	8-5/8	13-7/16	4-3/16	99
13-5/8	9-5/8	13-7/16	4-3/16	82
13-5/8	9-7/8	13-7/16	4-3/16	80
13-5/8	10-3/4	13-7/16	4-3/16	75
16-3/4	9-5/8	16-9/16	5-3/8	216
16-3/4	9-7/8	16-9/16	5-3/8	210
16-3/4	10-3/4	16-9/16	5-3/8	189
16-3/4	11-3/4	16-9/16	5-3/8	172
16-3/4	13-3/8	16-9/16	5-3/8	121
20-3/4	10-3/4	20-1/16	5-3/8	341
20-3/4	13-3/8	20-1/16	5-3/8	283
20-3/4	16	20-1/16	5-3/8	174
21-1/4	13-3/8	20-1/16	5-3/8	283

NW-22 Casing Hanger

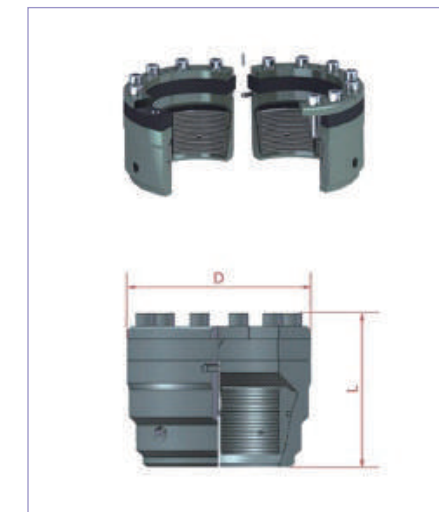
The NW-22 casing hanger is a slip style, wrap-around hanger with an automatic packoff sealing. When the casing load is suspended, the packoff automatically seals the casing annulus below the slips. Maximum working pressure 10,000 psi. The hanger is capable of supporting up to 50% of the pipe body yield at rating temperatures.



Flange Size	Casing Size	D	L	Weight
in	in	in	in	lb
11	4-1/2	10-13/16	8-7/8	120
11	5-1/2	10-13/16	8-7/8	107
11	7	10-13/16	8-7/8	90
11	7-5/8	10-13/16	8-7/8	72
13-5/8	5-1/2	13-7/16	8-7/8	192
13-5/8	7	13-7/16	8-7/8	182
13-5/8	7-5/8	13-7/16	8-7/8	168
13-5/8	8-5/8	13-7/16	8-7/8	150
13-5/8	9-5/8	13-7/16	8-7/8	130
13-5/8	9-7/8	13-7/16	8-7/8	124
13-5/8	10-3/4	13-7/16	8-7/8	109
16-3/4	9-5/8	16-9/16	9	359
16-3/4	9-7/8	16-9/16	9	316
16-3/4	10-3/4	16-9/16	9	306
16-3/4	11-3/4	16-9/16	9	294
16-3/4	13-3/8	16-9/16	9	280
20-3/4	10-3/4	20-1/16	9	420
20-3/4	13-3/8	20-1/16	9	388
20-3/4	16	20-1/16	9	360
21-1/4	13-3/8	20-1/16	9	401

NW22-H Casing Hanger

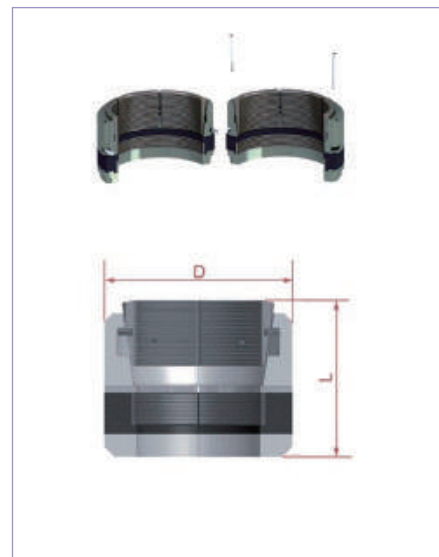
The NW22-H type casing hanger is a wrap-around, slip style, non-automatic for shallow wells with light casing loads (Maximum working pressure 10,000 psi). It is ideal for use where casing weight is insufficient to energize the hanger seal. The seal is mechanically energized by cap screws. The hanger is capable of supporting up to 50% of the pipe body yield at temperatures, and it is commonly used above mudline systems.



Flange Size	Casing Size	D	L	Weight
in	in	in	in	lb
11	5-1/2	10-13/16	9-1/8	137
11	7	10-13/16	9-1/8	106
13-5/8	9-5/8	13-1/2	9-1/8	148
13-5/8	10-3/4	13-1/2	9	110
20-3/4	13-3/8	20	9-1/8	392

NW-29 Casing Hanger

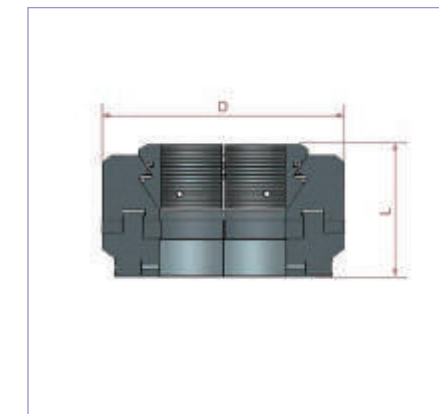
NW-29 casing hanger is a slip style, wrap-around hanger with an automatically energized annular seal. The hanger is capable of supporting up to 80% of the pipe body yield at rating temperatures. The hanger provides minimum casing deflection and a hanging capacity that surpasses the capacity of the NW-21 and NW-22 casing hangers. When the upper slips move down and energize the packoff, the untapered lower slips engage automatically and apply controlled compression around the pipe. The lower slips do not move down, thus they do not create a high compressive force, as do conventional tapered slips.



Flange Size	Casing Size	D	L	Weight
in	in	in	in	lb
11	4-1/2	10-13/16	8-7/8	120
11	5-1/2	10-13/16	8-7/8	107
11	7	10-13/16	8-7/8	90
11	7-5/8	10-13/16	8-7/8	72
13-5/8	4-1/2	13-7/16	8-7/8	199
13-5/8	5-1/2	13-7/16	8-7/8	192
13-5/8	7	13-7/16	8-7/8	182
13-5/8	7-5/8	13-7/16	8-7/8	168
13-5/8	8-5/8	13-7/16	8-7/8	150
13-5/8	9-5/8	13-7/16	8-7/8	130
13-5/8	9-7/8	13-7/16	8-7/8	124
13-5/8	10-3/4	13-7/16	8-7/8	109
16-3/4	9-5/8	16-9/16	8-7/8	359
16-3/4	9-7/8	16-9/16	8-7/8	316
16-3/4	10-3/4	16-9/16	8-7/8	306
16-3/4	11-3/4	16-9/16	8-7/8	294
16-3/4	13-3/8	16-9/16	8-7/8	280
20-3/4	10-3/4	20-1/16	8-7/8	420
20-3/4	13-3/8	20-1/16	8-7/8	388
20-3/4	16	20-1/16	8-7/8	360
21-1/4	13-3/8	20-1/16	8-7/8	419

W Casing Hanger

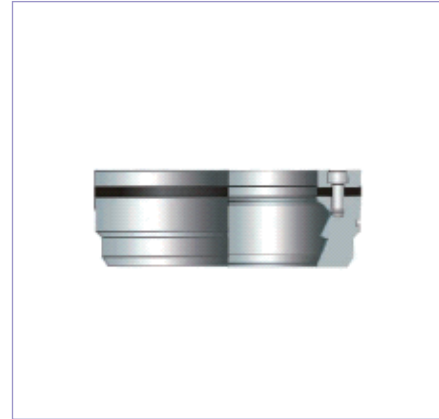
The type W casing hanger is a wrap-around, slip-type, weight-set hanger. It may be installed through the BOP and is suitable for heavy casing loads. The hanger supports casing weight and seals the annulus before the BOP is removed. Weight is supported on a solid shoulder not on seal - therefore, it will not over-compress the seal. The upper body diameter is larger to centralize and protect seals.



Flange Size	Casing Size
in	in
11	4-1/2
11	5
11	5-1/2
11	6-5/8
11	7
11	7-5/8
11	7-3/4
13-5/8	4-1/2
13-5/8	5
13-5/8	5-1/2
13-5/8	7
13-5/8	7-5/8
13-5/8	8-5/8
13-5/8	9-5/8
13-5/8	9-7/8
13-5/8	10-3/4
16-3/4	9-5/8
16-3/4	9-7/8
16-3/4	10-3/4
16-3/4	11-3/4
16-3/4	13-3/8
20-3/4	13-3/8
20-3/4	16

WE Casing Hanger

The type WE casing hanger is a wrap-around, slip-type hanger. The hanger is capable of supporting heavy casing loads, and is used when the annulus seal is required independent of casing load. The hanger is installed at the casing head or spool. The elastomer seal is mechanically by cap screws. This hanger is used commonly above mudline systems.



Flange Size	Casing Size
in	in
11	4-1/2
11	5
11	5-1/2
11	6-5/8
11	7
11	7-5/8
11	7-3/4
13-5/8	4-1/2
13-5/8	5
13-5/8	5-1/2
13-5/8	7
13-5/8	7-5/8
13-5/8	8-5/8
13-5/8	9-5/8
13-5/8	9-7/8
13-5/8	10-3/4
16-3/4	9-5/8
16-3/4	9-7/8
16-3/4	10-3/4
16-3/4	11-3/4
16-3/4	13-3/8
20-3/4	13-3/8
20-3/4	16

Mandrel Casing Hanger

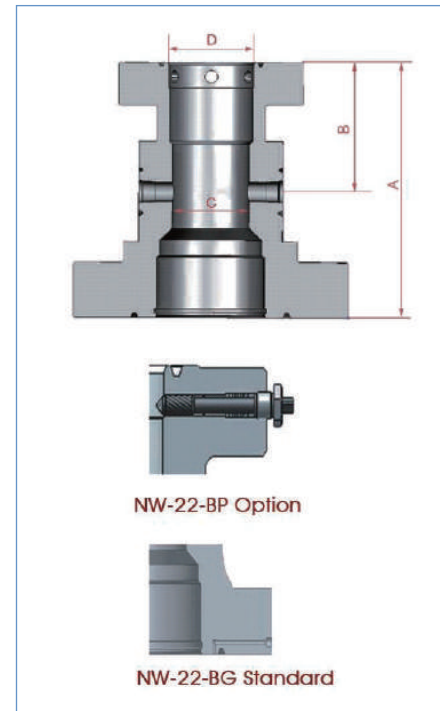
The casing hanger is a mandrel style, medium capacity. Hanger used in most service conditions. The Hanger is used in the NW bowl profile and utilizes radially energized elastomer body seals to affect a positive annular seal. The Hanger neck is the same diameter as the casing it suspends, it therefore can be used with a standard secondary seal.



Flange Size	Casing Size
in	in
11	4-1/2
11	5
11	5-1/2
11	6-5/8
11	7
11	7-5/8
11	7-3/4
13-5/8	4-1/2
13-5/8	5
13-5/8	5-1/2
13-5/8	7
13-5/8	7-5/8
13-5/8	7-3/4
13-5/8	4-1/2
13-5/8	5
13-5/8	5-1/2
13-5/8	7
13-5/8	7-5/8
13-5/8	8-5/8
13-5/8	9-5/8
13-5/8	9-7/8
13-5/8	10-3/4
16-3/4	9-5/8
16-3/4	9-7/8
16-3/4	10-3/4
16-3/4	11-3/4
16-3/4	13-3/8
20-3/4	13-3/8
20-3/4	16

NW-22/NW-29 Casing Spool

The NW-22 casing spools are a straight bore bowl design. NW-22 Casing spools provide interchangeability of casing hangers NW-22 and NW-21. If a bowl protector is required during the drilling process, using an NW-22-BP casing spool, including lock down screws in the upper flange would be recommended. Bottom preparation can be the "P" secondary seal type or the bit guide preparation type, as in the picture (NW-22-BG). The BG preparation allows the use of reducer bushings "4-O" and "PE" (Pressure Energized).



Bottom Flange Size	Working Pressure	Top Flange Size	Working Pressure	Outlets	A	B	C	D	Weight
in	psi	in	psi		in	in	in	in	lb
11	3,000	11	3,000	2-1/16" Std	22-1/2	12-1/4	8	10-7/8	968
11	3,000	11	5,000	2-1/16" Std	24-1/4	14	8	10-7/8	1200
11	5,000	11	5,000	2-1/16" Std	26-1/4	12-7/8	8	10-7/8	1364
11	5,000	11	10,000	2-1/16" Std	26-7/8	13-1/2	8	10-7/8	2850
13-5/8	3,000	11	3,000	2-1/16" Std	22	12-7/8	9	10-7/8	1324
13-5/8	3,000	11	5,000	2-1/16" Std	19-13/16	10-7/8	9	10-7/8	1820
13-5/8	5,000	11	5,000	2-1/16" Std	25-5/8	13-3/8	9	10-7/8	1659
13-5/8	5,000	11	10,000	2-1/16" Std	25-1/2	13-1/4	9	10-7/8	2950
20-3/4	3,000	11	3,000	2-1/16" Std	21-1/2	10-5/8	10	10-7/8	2800
20-3/4	3,000	13-5/8	5,000	2-1/16" Std	23-1/4	9-3/4	12-5/8	13-1/2	3745
21-1/4	2,000	13-5/8	3,000	2-1/16" Std	23	10-1/2	12-1/2	13-1/2	2730
21-1/4	2,000	13-5/8	5,000	2-1/16" Std	26-13/16	13-3/8	12-1/2	13-1/2	2461

NW-29 casing spools are based on the same reliable design as the NW-22 with exception that the bowl is longer, which permits the acceptance of the minimum deflection NW-29 casing hanger with larger load capacity for deeper drilling.

NW secondary seals are available for all internal and external diameter sizes used in casing head spools and tubing head spools.

PE Secondary Seal

For 10000 psi applications, the PE reducer bushing can be installed in casing head spools NW-22 and NW-29 prepared with "BG" lower internal preparation. Reducer bushings are designed with a reduced internal diameter to serve as an integral bit guide.



Flange Size	Working Pressure	Casing Size
in	in	
11	10,000	4-1/2
11	10,000	5-1/2
11	10,000	7
11	10,000	7-5/8
13-5/8	10,000	8-5/8
13-5/8	10,000	9-5/8

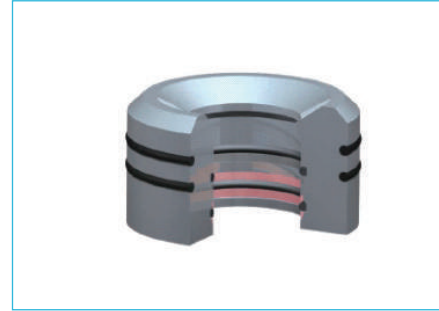
O-O Secondary Seal

The "OO" reducer bushing is to be installed in casing or tubing head spools with integral "OO" lower internal connection. The bushing is available for applications up to 5000 psi working pressure. Reducer bushings are designed with a reduced internal diameter to serve as an integral bit guide.



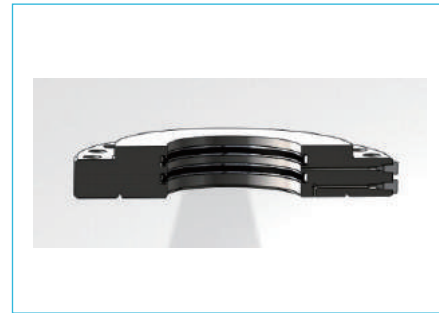
4-O Secondary Seal

The "4-O" reducer busing is to be installed in casing or tubing head spools with the "BG" lower internal connection. The busing is available for applications up to 5000 psi working pressure. Reducer bushings are designed with a reduced internal diameter to serve as an integral bit guide.



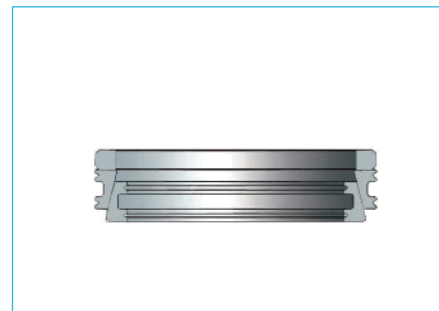
P Secondary Seal

Double P Seals are ideal for use as crossovers where moderately severe service is expected. Double P Seals are sized to accommodate the tolerance range of casing and may be used on machined hanger necks. P seals are energized by means of injecting plastic packing through ports containing check valves, maintaining a constant pressure on the seal itself. It is available for applications up to 10000psi working pressure.



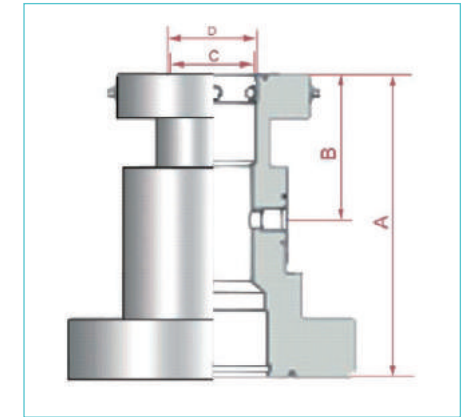
CANH Metal Seal

CANH is a pressure assisted metal to metal sealing. It contains an inner seal ring and outer seal ring, and both seal rings have tapered sealing surfaces and four convex sealing nibs on the opposite surface. It is available for applications up to 20000psi working pressure.



TC1A Tubing Head

TC1A Tubing Heads are a straight bore bowl design which avoids damage to sealing areas by drilling tools, and prevents wedging of the tubing hangers, bowl protectors and test plugs. The secondary seal for the last casing pipe can be "P" seal type or the bit guide preparation type (TCM-BG). The BG preparation allows the use of reducer bushings "4-O" and "PE" (Pressure Energized). The upper flange is supplied with lockdown screws for packoff re-energization and tubing hanger retention. Side outlets are LP or studded type prepared with internal threads to install a valve removal plug when desired. The lower flange includes a grease fitting and orifice for testing of the secondary seal. The type of the tubing head that can orientate the tubing hanger is provided, if required.



Bottom Flange Size	Working Pressure	Top Flange Size	Working Pressure	Outlets	A	B	C	D	Weight
in	psi	in	psi		in	in	in	in	lb
7-1/16	3,000	11	3,000	2" LP	21-1/2	10-3/4	7	7-1/8	739
7-1/16	3,000	11	3,000	2-1/16" Std	21-1/2	10-3/4	7	7-1/8	770
7-1/16	5,000	11	3,000	2-1/16" Std	22-1/4	11-3/4	7	7-1/8	717
7-1/16	5,000	11	5,000	2-1/16" Std	24-1/2	11-3/4	7	7-1/8	981
7-1/16	10,000	11	5,000	2-1/16" Std	25	12-1/4	7	7-1/8	1144
7-1/16	10,000	11	10,000	1-13/16" Std	25-1/2	11-3/4	7	7-1/8	1351
11	3,000	13-5/8	3,000	2-1/16" Std	23-1/4	12-3/8	10	10-7/8	855
11	5,000	11	5,000	2-1/16" Std	26-1/2	13-1/4	8-1/2	10-7/8	800
11	5,000	13-5/8	5,000	2-1/16" Std	26	13-5/8	10	10-7/8	1595
11	10,000	11	10,000	2-1/16" Std	26	13	11	10-7/8	-
11	10,000	13-5/8	5,000	1-13/16" Std	29-3/8	15	10-7/8	10-7/8	1351

Tubing Hangers



TC1A-EN Tubing Hanger

TC1A-EN tubing hanger is an extended neck and threaded single completion tubing hanger, sealing the annular space by compression which is energized by lock down screws in the TC1A tubing head. The upper part of the extended neck has "S" type spring seals or O ring to pack against the internal diameter of the tubing head adapter, making a reliable and tested way to confine the well pressure. The TC1A-EN tubing hanger is used with the TC1A-EN tubing bonnet.

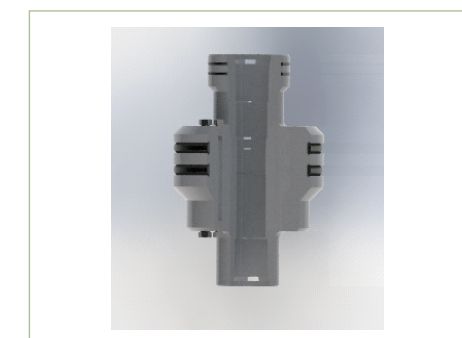
Flange Size	Tubing Size
in	in
7-1/16	2-3/8
7-1/16	2-7/8
7-1/16	3-1/2
7-1/16	4-1/2
11	2-7/8
11	3-1/2
11	4-1/2



TC1A-CC Tubing Hanger

The TC1A-CC tubing hanger is arranged for a continuous control line. This allows more than one control line. This threaded mandrel hanger with "K" seals for annulus packoff and an extended neck with "K" seals to packoff the tubing head adapter flange. It has a back pressure valve thread. Other tubing thread sizes, including premium threads are available upon request.

Flange Size	Tubing Size
in	in
7-1/16	2-3/8
7-1/16	2-7/8
7-1/16	3-1/2
11	2-7/8
11	3-1/2
11	4-1/2



TC1A-CH Tubing Hanger

The TC1A-CH is same as TC1A-EN but is arranged for a maximum of one control line up to 3/8"OD, which is terminated at the bottom of the hanger. The TC1A-CH hanger is made to work in conjunction with the TC1A-CL tubing bonnet.

Flange Size	Tubing Size
in	in
7-1/16	2-3/8
7-1/16	2-7/8
7-1/16	3-1/2
11	2-7/8
11	3-1/2
11	4-1/2



ESP Tubing Hanger

The TC ESP hanger is dual-ported, with one port designed to accept a single production tubing string. The second port is designed to accommodate the electrical conductors that pass the current between the surface cable and the subsurface cable that goes to the pump. We standardized on EUE thread configurations. Nevertheless, additional thread profiles and different configurations can be supplied.

Flange Size	Tubing Size
in	in
11	3-1/2
11	4-1/2
13-5/8	7



TC1W Wrap-around Tubing Hanger

TC1W is a slick-joint wrap-around tubing hanger which does not require a polished joint to slip over the tubing pipe inset. The seal between the pipe and the hanger is obtained by energizing the lockdown screws in the upper flange head.

Flange Size	Tubing Size
in	in
7-1/16	2-3/8
7-1/16	2-7/8
7-1/16	3-1/2
11	2-7/8
11	3-1/2
11	4-1/2



BO-2 Tubing Hanger

A BO-2 coupling-type tubing hanger uses a one-piece coupling that is externally threaded with a coarse heavy-duty ACME thread. Internally the coupling will provide tubing threads in the top and bottom along with a back-pressure valve groove. The BO-2 coupling is attached to the last tubing joint and is run in conjunction with a TC1W wraparound-type packoff. Ultimately, the BO-2 coupling is made up into a BO-2 adapter that is assembled on the bottom of the Christmas tree.

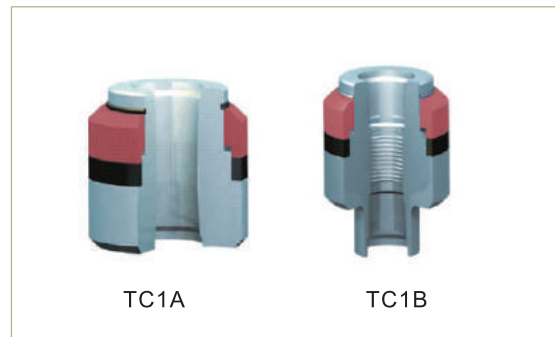
Flange Size	Tubing Size
in	in
7-1/16	2-3/8
7-1/16	2-7/8
7-1/16	3-1/2
11	2-7/8
11	3-1/2
11	4-1/2



TC1A/TC1A-B Tubing Hanger

TC1A is a threaded mandrel-type hanger, this hanger with an integral compression-type annulus seal that is actuated by string weight and or by lockdown screws. This hanger can be supplied with back-pressure valve threads.

Flange Size	Tubing Size
in	in
7-1/16	2-3/8
7-1/16	2-7/8
7-1/16	3-1/2
11	2-7/8
11	3-1/2
11	4-1/2



BMS Tubing Hanger

BMS tubing hanger is designed for high temperature and corrosive environments. The BMS hanger features the SRL Neck Seal and the metal body Seal. The maximum working pressure is 20000psi. The control line should be provided (continuous line), if required.

Flange Size	Tubing Size
in	in
7-1/16	2-3/8
7-1/16	2-7/8
7-1/16	3-1/2
11	2-7/8
11	3-1/2
11	4-1/2



TC-CL/TC-EN/TC-CC Adapter Bonnet

The TC-EN, TC-CL, and TC-CC tubing bonnets are designed to work in conjunction with the TC1A-EN, TC1A-CH, and TC1A-CC tubing hangers. The tubing bonnets fit over the extended neck tubing hangers to provide a radial sealing surface for the "S" type spring seals or O ring on the extended neck of the tubing hanger to seal in the tubing bonnet. The tubing bonnet is composed of an API thru-bolt bottom flange and a studded top flange, the bottom flanges have 1/2" test ports. The TC-CL tubing bonnet is arranged for a maximum of one control line, which is terminated at the bottom of the TC-CL body. The TC-CC is arranged for continuous control line hole, which enters the bottom of the body and exits the body through the 3/8"NPT connection. This bonnet can accommodate more than one control line.

Bottom Flange	Working Pressure	Top Flange	Working Pressure	Tubing	Weight
in	psi	in	psi	in	lb
7-1/16	3,000	2-1/16	3,000	2-3/8	275
7-1/16	3,000	2-9/16	3,000	2-7/8	275
7-1/16	3,000	3-1/8	3,000	3-1/2	275
7-1/16	3,000	3-1/8	5,000	3-1/2	275
7-1/16	5,000	2-1/16	5,000	2-3/8	300
7-1/16	5,000	2-9/16	5,000	2-7/8	300
7-1/16	5,000	3-1/8	5,000	3-1/2	300
7-1/16	10,000	2-1/16	10,000	2-3/8	450
7-1/16	10,000	2-9/16	10,000	2-7/8	450
7-1/16	10,000	3-1/16	10,000	3-1/2	625
11	3,000	2-1/16	5,000	2-1/8	575
11	3,000	2-9/16	5,000	2-7/8	575
11	3,000	3-1/8	5,000	3-1/2	575
11	5,000	2-1/16	5,000	2-3/8	675
11	5,000	2-9/16	5,000	2-7/8	675
11	5,000	3-1/8	5,000	3-1/2	675
11	10,000	2-1/16	10,000	2-3/8	975
11	10,000	2-9/16	10,000	2-7/8	950
11	10,000	3-1/16	10,000	3-1/2	1000



B2P Adapter Bonnets

B2P tubing bonnets have API flanged bottom and studded/flange top connections, these bonnets have female sealing threads to suspend tubing over TC1W wrap around hanger packoff or can be used with the TC1A hanger. They are certified for use up to 5000 psi working pressure at -50°F to 250°F.

Bottom Flange	Working Pressure	Top Flange	Working Pressure	Tubing	Weight
in	psi	in	psi	in	lb
7-1/16	3,000	2-1/16	5,000	2-3/8	132
7-1/16	3,000	2-9/16	5,000	2-7/8	143
7-1/16	5,000	2-1/16	5,000	2-3/8	187
7-1/16	5,000	2-9/16	5,000	2-7/8	198



BO2 Adapter Bonnets

BO-2 has an API flanged bottom and studded top connection. A socket in the lower bore consists of a support thread and a radial seal surface for the BO-2 coupling hanger. The coupling hanger has back-pressure valve preparation that provides well control until Christmas Tree is installed. BO-2 is certified for use up to 10000 psi at -50 °F to 250°F.

Bottom Flange	Working Pressure	Top Flange	Working Pressure	Tubing	Weight
in	psi	in	psi	in	lb
7-1/16	3,000	2-1/16	3,000	2-3/8	275
7-1/16	3,000	2-9/16	3,000	2-7/8	275
7-1/16	3,000	3-1/8	3,000	3-1/2	275
7-1/16	3,000	3-1/8	5,000	3-1/2	275
7-1/16	5,000	2-1/16	5,000	2-3/8	300
7-1/16	5,000	2-9/16	5,000	2-7/8	300
7-1/16	5,000	3-1/8	5,000	3-1/2	300
7-1/16	10,000	2-1/16	10,000	2-3/8	450
7-1/16	10,000	2-9/16	10,000	2-7/8	450
7-1/16	10,000	3-1/16	10,000	3-1/2	625
11	3,000	2-1/16	5,000	2-1/8	575
11	3,000	2-9/16	5,000	2-7/8	575
11	3,000	3-1/8	5,000	3-1/2	575
11	5,000	2-1/16	5,000	2-3/8	675
11	5,000	2-9/16	5,000	2-7/8	675
11	5,000	3-1/8	5,000	3-1/2	675
11	10,000	2-1/16	10,000	2-3/8	975
11	10,000	2-9/16	10,000	2-7/8	950
11	10,000	3-1/16	10,000	3-1/2	1000



B1 Adapter Bonnet

B1 Tubing bonnets have internal threads to suspend tubing or can be used with TC1W tubing hangers. B1 bonnets have threaded pin connections for the top sections of the wellhead. B1 adapters are available in most sizes and pressure ranges.

Bottom Flange	Working Pressure	Thread	Weight
in	psi	in	lb
7-1/16	2,000	2-3/8	117
7-1/16	2,000	2-7/8	110
7-1/16	2,000	3-1/2	112
7-1/16	3,000	2-3/8	132
7-1/16	3,000	2-7/8	132
7-1/16	3,000	3-1/2	134
7-1/16	5,000	2-3/8	187
7-1/16	5,000	2-7/8	187
7-1/16	10,000	2-3/8	309
7-1/16	10,000	2-7/8	309



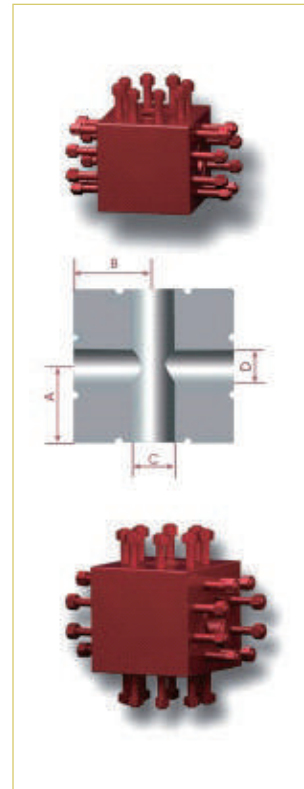
ESP Adapter Bonnet

ESP adapters have seal bores to accommodate both a tubing hanger neck seal and an electrical power feed-thru device. Standard ESP adapters are equipped with rotating flanges to mate to the tubing head, minimizing concerns over alignment issues. Positive alignment can be obtained through the use of optional features in the mating ESP hanger. ESP adapters can be supplied to match standard tubing heads rated to 3,000 and 5,000 psi working pressure.

Bottom Flange	Working Pressure	Top Flange	Working Pressure	Tubing	Weight
in	psi	in	psi	in	lb
11	3,000	3-1/8	3,000	2-3/8	415



Bore		Outlets		A	B	C	D	Weight Tee	Weight Cross
in	psi	in	psi	in	in	in	in	lb	lb
2-1/16	2,000	2-1/16	2,000	3.50	3.50	2.06	2.06	95	85
2-1/16	5,000	2-1/16	5,000	4.50	4.50	2.06	2.06	160	161
2-9/16	2,000	2-9/16	2,000	4.50	4.50	2.56	2.56	125	119
2-9/16	5,000	2-1/16	5,000	4.50	5.00	2.56	2.06	375	255
2-9/16	5,000	2-9/16	5,000	5.00	5.00	2.56	2.56	350	225
3-1/8	2,000	3-1/8	2,000	4.50	4.50	3.12	3.12	198	185
3-1/8	3,000	2-1/16	3,000	4.50	5.00	3.12	2.06	264	231
3-1/8	3,000	2-9/16	3,000	5.00	5.00	3.12	2.56	350	275
3-1/8	3,000	3-1/8	3,000	5.00	5.00	3.12	3.12	264	274
3-1/8	5,000	2-1/16	5,000	4.50	5.50	3.12	2.06	264	295
3-1/8	5,000	2-9/16	5,000	5.50	5.50	3.12	2.56	364	310
3-1/8	5,000	3-1/8	5,000	5.50	5.50	3.12	3.12	414	321
4-1/16	2,000	4-1/16	2,000	5.50	5.50	4.06	4.06	405	354
4-1/16	3,000	3-1/8	3,000	5.00	6.12	4.06	3.12	45	435
4-1/16	3,000	4-1/16	3,000	6.12	6.12	4.06	4.06	495	451
4-1/16	5,000	2-9/16	5,000	5.00	6.50	4.06	2.56	447	425
4-1/16	5,000	3-1/8	5,000	5.50	6.50	4.06	3.12	488	425
4-1/16	5,000	4-1/16	5,000	6.50	6.50	4.06	2.56	565	486
1-13/16	10,000	1-13/16	10,000	4.38	4.38	1.81	1.81	191	187
1-13/16	15,000	1-13/16	15,000	5.00	5.00	1.81	1.81	257	153
2-1/16	10,000	1-13/16	10,000	4.38	4.38	2.06	1.81	191	187
2-1/16	10,000	2-1/16	10,000	4.38	4.38	2.06	2.06	191	187
2-1/16	15,000	1-13/16	15,000	5.00	5.0	2.06	1.81	275	253
2-1/16	15,000	2-1/16	15,000	5.00	5.00	2.06	2.06	257	253
2-9/16	10,000	1-13/16	10,000	4.50	5.12	2.56	1.81	246	241
2-9/16	10,000	2-1/16	10,000	4.50	5.12	2.56	2.06	246	241
2-9/16	10,000	2-9/16	10,000	5.12	5.12	2.56	2.56	286	280
2-9/16	15,000	1-13/16	15,000	5.50	5.50	2.56	1.81	386	307
2-9/16	15,000	2-1/16	15,000	5.50	5.50	2.56	2.06	389	350
2-9/16	15,000	2-9/16	15,000	5.50	5.50	2.56	2.56	375	335
3-1/16	10,000	1-13/16	10,000	4.50	5.88	3.06	1.81	370	350
3-1/16	10,000	2-1/16	10,000	4.50	5.88	3.06	2.06	370	350
3-1/16	10,000	2-9/16	10,000	5.12	5.88	3.06	2.56	407	433
3-1/16	10,000	3-1/16	10,000	5.88	5.88	3.06	3.06	480	464
3-1/16	15,000	1-13/16	15,000	6.31	6.31	3.06	1.81	486	470
3-1/16	15,000	2-1/16	15,000	6.31	6.31	3.06	2.06	470	440
3-1/16	15,000	2-9/16	15,000	6.31	6.31	3.06	2.56	440	432
3-1/16	15,000	3-1/16	15,000	6.31	6.31	3.06	3.06	430	422



Christmas Tree Cap

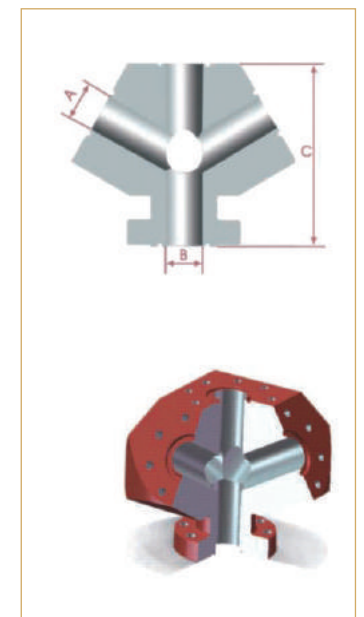
Christmas Tree Cap is a top connector which is used on the top of X-Mas Tree, It's main function is to provide access to the X-Mas Tree bore. It is basically consisting of a Flanged body, Blanking Plug, Hammer Nut as principal parts and seal ring as secondary parts. Blanking Plug has a provision to accommodate pressure gauge to ascertain inside pressure of the well. Inside of Flanged body is having API-UPTBG thread as lift thread.

Flange	Working Pressure	Bore	Weight
in	psi	in	lb
2-1/16	5,000	2-1/16	48
2-1/16	10,000	2-1/16	42
2-9/16	5,000	2-9/16	69
2-9/16	10,000	2-9/16	64
3-1/8	3,000	3-1/8	88
3-1/8	5,000	3-1/8	101
3-1/16	10,000	3-1/16	110
4-1/16	5,000	4-1/16	139
4-1/16	10,000	4-1/16	214



Frac Head

Bore(B)		Outlets(A)		Height(C)	Weight
in	psi	in	psi	in	lb
4-1/16	10,000	4-1/16	10,000	20	1256
4-1/16	10,000	5-1/8	10,000	20	1500
4-1/16	10,000	7-1/16	10,000	22	2380
4-1/16	15,000	4-1/16	15,000	20	1680
4-1/16	15,000	5-1/8	15,000	23-7/8	2644

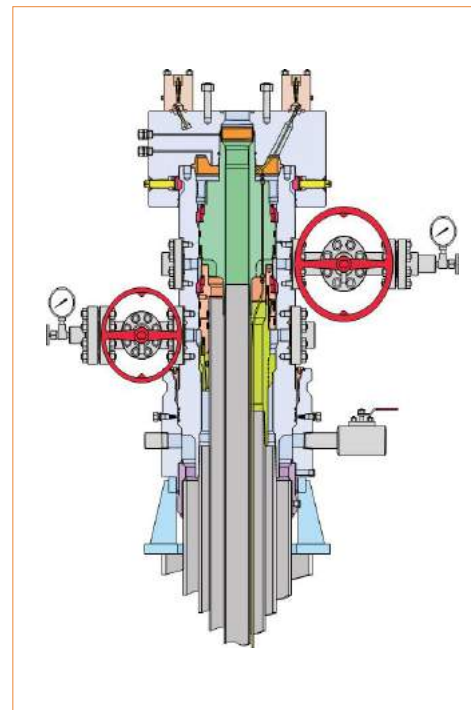


Integral wellhead

The integral wellhead allows two layers of casing to be hung and sealed. Both layers of casing run through a single wellbore to drill and run, hang and seal the casing, eliminating the need for frequent removal and installation of the BOP, saving on costly rig runs.

Features

- Flexible structure, multi - use fast card loading mechanism.
- Complete integration design to solve multiple emergency situations.
- Compared with conventional wellheads, this type of wellhead provides higher safety and saves installation time and labor costs.



Scope

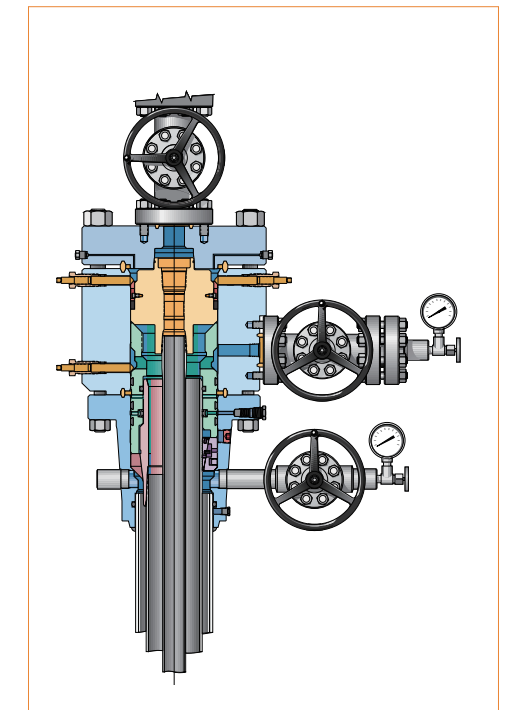
Application
Land and ocean drilling platforms
Advantage
API standard flange (quick fitting connector optional)
Staged drilling match
Extreme design pressure: 15,000psi
Operating temperature: -60 C~121 C
Material Class: AA,BB,CC,DD,EE,FF,HH
Specification level: PSL1~3G
Performance level: PR1~2F
Mandrel hanger (slip hanger as emergency backup)
Standard installation tools
Rubber Seal (10,000 psl and up)
Metal seal (above 10,000 psi)

Multistage casing (tubing) wellhead system

The multistage casing (tubing) wellhead is a compact, integrated wellhead with fewer leaks that reduces time and optimizes operating costs by eliminating the need for frequent removal and installation of the BOP. It can be used as an alternative to traditional wellhead systems in onshore and offshore drilling and production platform applications.

Features

- Modular design, compact structure, complete functions, easy installation and maintenance.
- The monolithic structure saves space and reduces external connections, which in turn reduces leaks.
- No internal cutting machine is used on site to cut casing, easy to operate.



Scope

Application
Land and ocean drilling platforms
Advantage
API standard flange (quick fitting connector optional)
Staged drilling match
Extreme design pressure: 15,000psi
Operating temperature: -60 C~121 C
Material Class: AA,BB,CC,DD,EE,FF,HH
Specification level: PSL1~3G
Performance level: PR1~2F
Mandrel hanger (slip hanger as emergency backup)
Standard installation tools
Rubber Seal (10,000 psl and up)
Metal seal (above 10,000 psi)

NOE Conventional Wellhead Systems provide the flexibility, compatibility and interchangeability required for a wide range of surface applications. With the proven features of NOE systems comes reduced inventory requirements, lower costs and the ability to provide standard components. NOE has earned a reputation for quality wellhead products that meet or exceed API 6A specifications. NOE offers a complete line of conventional wellheads and christmas trees to suit all casing and tubing programs for working pressures up to 20,000psi. Equipment for surface applications ranges from low pressure, conventional equipment to systems for severe service and geothermal applications.



Multi- Lateral Slim Twin Wellhead and ChristmasTree

NOE Conventional Wellhead Systems provide the flexibility, compatibility and interchangeability required for a wide range of surface applications. With the proven features of NOE systems comes reduced inventory requirements, lower costs and the ability to provide standard components. NOE has earned a reputation for quality wellhead products that meet or exceed API 6A specifications. NOE offers a complete line of conventional wellheads and christmas trees to suit all casing and tubing programs for working pressures up to 20,000psi. Equipment for surface applications ranges from low pressure, conventional equipment to systems for severe service and geothermal applications.

Features

- Two separate wells inside a single conductor.
- Various casing / tubing strings in each well.
- Reduction of the number and size of platforms required for field development.
- Maximized use of single platform slots
- Major savings for the project (time and platform reduction).

Scope

Item	Unitized
Conductor	36"
Surface Casings	13-3/8"
Completions	5-1/2"~2-7/8"

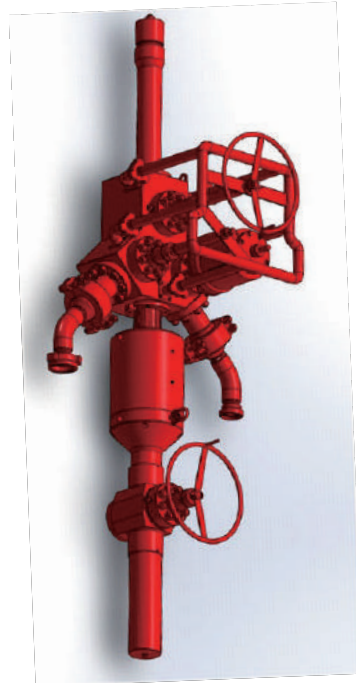


Features

- Adaptable and compact design provides added flexibility and mobility.
- Low torque metal-to-metal sealing on all gate valves provides increased reliability and ease of operation.
- Hydraulic “failsafe” flow line valve with stem positioning indicator enhances safety.
- Protection frame on main block for manual and hydraulic valves improves durability.
- Swivel enables rotation of the test string for packer setting and disconnect operations.
- Transportation basket with four-point lifting sling and integral forklift pockets for protection during shipping and ease of handling.

Scope

Working Pressure	Size		
	3-1/16”	4-1/16”	5-1/8”
psi			
3,000			
5,000			
10,000			
15,000			
20,000			



BPV

The Back Pressure Valve (BPV) is designed to block the pressure coming upstream from the well during the removal of the BOP and during the repair of the Christmas tree. It includes one-way BPV and two-way BPV. In most cases, you will use a one-way BPV, except when testing the BOP stack or the Christmas Tree.



OD of thread(in)	1-1/4	1-1/2	1-3/4	2	2-1/2	3	3-1/2	4
	4-3/32	4-1/4	4-3/8	5	6-1/6	6-1/8	6-5/16	6-3/8

BPV Lubricator

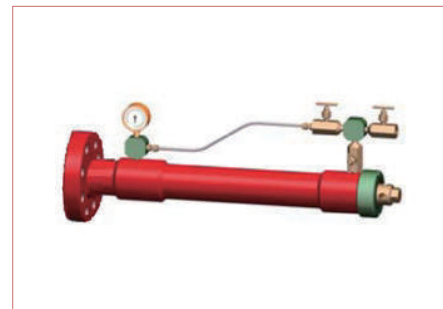
It can be used to run and retrieve back pressure valve (BPV). Uses pressure directly from the well and the pressure is balanced between the tool's upper and lower housing, the rod will move easily.



VR plug and VR lubricator

- Lubricator installs VR plugs in casing head, casing spool or tubing head side outlets so gate valves can be isolated from pressure for removal or repair.
- For outlet working pressures of 15,000 psi, straight-thread VR plugs are standard. For lower working pressures, tapered-thread VR plugs are standard.
- All studded and flanged outlets on casing heads, casing spools and tubing heads are threaded to accept VR plugs.

Maximum Working Pressure	OD of thread "A"	TPI
psi	in	ref.
10,000	1.66	11-1/2
	1.9	11-1/2
	2-3/8	11-1/2
	2-7/8	11-1/2
	3-1/2	11-1/2
20,000	1-3/4	6
	2	6
	2-1/2	6
	3	6



Wear Bushing

- The Wear bushing is designed with J-slots to accept the lift lugs of the running tool. The running tool is installed into the wear bushing with clockwise rotation to engage the lift lugs into the J-slots.
- The wear bushing may be install into heads or spools with or without lockscrews. It is designed with a groove to allow lockscrews to be run in to prevent this rotation (where applicable).
- The Wear Bushing is available in all nominal sizes and bores as specified.



Combination tool

- The Dovetail seal is a radially energized elastomer seal used in all test plugs.
- The Test plug is not designed to be used with lock screws.
- The Combination Tool is equipped with either box type 3-1/2" IF or 4-1/2" IF tool joint connections both top and bottom configuration.
- The Combination tool is also doubles as a wear bushing running tool when inverted. It equipped with four lift lugs, these lugs can use to run and retrieve wear bushing.

Size	Pressure
in	psi
7-1/16	2,000~15,000
9	2,000~15,000
11	2,000~15,000
13-5/8	2,000~15,000
16-3/4	2,000~5,000
20	2,000~5,000

