1.0 SCOPE

The scope of this list is to enable engineering to comprehensively complete an API 16D sizing calculation for customers. Engineering uses several internal calculators for this purpose.

2.0 REQUIREMENTS

API Reference

The reference is to API 16D latest edition

3.0 PURPOSE

Engineering wants to ensure that all sizing calculations meet the Customer's requirements. **ALL** information provided should be stated on this form with any extra documents or reference material attached.

Inputs List

SN	Request	Answer	Notes
1	Is this sizing for API 16D compliance review of an existing, upgrade, repair, new, or particular unit?	New unit	
2	Please provide the API 16D edition required for sizing.	Last edition	
3	Please provide the BOP stack configuration, including BOP type and OEM, bore size, pressure ratings, number of cavities, and bonnet types for; annular, HCR valves, RAMs, and diverter(s) (if applicable).	See Annexe 1	
4	Please provide the shear pressure in psi at RWP or the details of the pipe to be sheared (OD, WPF, and Strength) with the Shear RAM block type.	3000 PSI	
5	The Customer should confirm if the high and low ambient temperature points differ from 90° ± 30°F	Yes	
New unit request			
SN	**Request**	**Answer**	**Notes**
14	Please confirm if API 16D 3rd Edition Monogram is required?	Yes	
15	Please provide the current voltage supplied (220/240, 380/415, 460/480, 575, etc.) The current Hz supplied (50Hz or 60 Hz.)	480 VAC 60 Hz	
16	Please provide the current rig supplied air pressure (PSI) and SCFM	Static Air pressure Max 110PIS - SCFM 4.5 M^3/MIN	
17	Please provide; the rig identification, destination, and Rig location for the control unit if known.	Land drilling Rig 2000 HP	
18	Special requirements, such as Well Control Manuals, BSEE Regulations, or others, shall be noted.	----------	
Existing unit or current configuration			
SN	**Request**	**Answer**	**Notes**
19	Please provide current unit API 16D edition of manufacture.	NA	
20	Please provide current number of Accumulator bottles, volume size, and working pressure.		
21	Please provide current Accumulator bottle pre-charge pressure setting (PSI)		
22	Please provide Current reservoir volume in USG		
23	Please provide Triplex pump quantity and flow rate (GPM)		
24	Please provide Air pump quantity and flow rate (GPM)		
25	Please provide number of remote panels, style (Air, Push button, HMI) and relevant distances.		
26	Manifold regulator size and type		
27	Annular regulator size and type		
28	4-way Selector valve size		
29	Please provide the current voltage supplied (220/240, 380/415, 460/480, 575, etc.) The current Hz supplied (50 Hz or 60 Hz.)		
30	Please confirm rig supplied air pressure (PSI) and SCFM		
31	Current unit envelop dimensions, x, y, and z		
32	Please provide; the rig identification, destination, and Rig location for the control unit if known.		

13-5/8", 10M BOP XXXXXXX = Missing Information

Item	Description	Opening Volume	Closing Volume	Closing Ratio	MOPFLPS	Required Shear Pressure at 0psi Wellbore Pressure
1	Annular, 13-5/8", 10M	32.64 gal	40.16 gal		1000	
2	Upper Pipe Ram, 13-5/8", 10M	11.7 gal	12.6 gal	XXXXXXX	1500	
3	Shear Ram, 13-5/8", 10M	XXXXXXX	XXXXXXX	XXXXXXX	3000	5", 19.5 ppf, G105

						Shear Pressure – 3000 5”, 19.5 ppf, S135 Shear Pressure – 3000
4	Lower Pipe Ram, 13-5/8”, 10M	11.7 gal	12.6 gal	XXXXXXX	1500	
5	HCR Valve, 4-1/16”, 10M	1 gal	1 gal			
6	HCR Valve, 4-1/16”, 10M	1 gal	1 gal			
7	HCR Valve, 2-1/16”, 10M	1 gal	1 gal			
8	HCR Valve, 2-1/16”, 10M	1 gal	1 gal			
9	Spare					

21-14”, 2M BOP XXXXXXX = Missing Information

Item	Description	Opening Volume	Closing Volume	Closing Ratio	MOPFLPS
1	Annular, 21-1/4”, 2M	18.9 gal	31.1 gal		1500
2	Upper Pipe Ram, 21-1/4”, 2M	13.59 gal	14.5 gal	XXXXXXX	1500
3	Middle Pipe Ram, 21-1/4”, 2M	13.59 gal	14.5 gal	XXXXXXX	1500
4	~~Lower Pipe Ram, 21-1/4”, 2M~~	~~13.59 gal~~	~~14.5 gal~~	XXXXXXX	XXXXXX
5	HCR Valve, 4-1/16”, 10M	1 gal	1 gal		
6	HCR Valve, 4-1/16”, 10M	1 gal	1 gal		
7	HCR Valve, 2-1/16”, 10M	1 gal	1 gal		
8	HCR Valve, 2-1/16”, 10M	1 gal	1 gal		
9	Spare				

Stack function	Make	Type (model)	Size	Rated working pressure	Sealing Pressure		Operating pressure		Gallons to close	Gallons to open	Closing Ratio	
				Mpa(PSI)	PSI	L(gal)	PSI	L(gal)				
Annular												
Pipe ram 1												
Pipe ram 2												
Pipe ram 3												
Shear ram												
Hcr valve												
Diverter												
Diverter rubber core												
Port												
Starboard												

System Parameter		
System Working Pressure		PSI
Environment Condition		
Minimum surface temperature		°C
Maximum surface temperature		°C
Atmospheric pressure		MPa

ANNEX 1

Blowout Preventer Stack #1

	Manufacture	Model / Size	Working Pressure	Operator Pressure	Closing Volume	Open Volume	Closing Ratio
Annular 1	Any Manufacturer	All 21 1/4	2000	1000PSI	33 gal	19 gal	
Annular 2							
Ram 1	Any Manufacturer	All 21 1/4	2000	1500 PSI	15 gal	14 gal	
Ram 2	Any Manufacturer	All 21 1/4	2000	1500 PSI	15 gal	14 gal	
Ram 3							
Ram 4							
Ram 5							
Valve	MCM	F & FC 4-1/16	10000	1500			
Valve	MCM	F & FC 2-1/16	10000	1500			

Blowout Preventer Stack #2

	Manufacture	Model / Size	Working Pressure	Operator Pressure	Closing Volume	Open Volume	Closing Ratio
Annular 1	Any Manufacturer	13 5/8	10000	1000	40	33	
Annular 2							
Ram 1	Any Manufacturer	13 5/8	10000	1500	13	12	
Ram 2	Any Manufacturer	13 5/8	10000	1500	13	12	
Ram 3	Any Manufacturer	13 5/8	10000	1500	13	12	
Ram 4							
Ram 5							
Valve	MCM	F & FC 4-1/16	10000	1500			
Valve	MCM	F & FC 2-1/16	10000	1500			