FABRICATION ENGINEERING

압력용기 제조 원가 산출 계산 프로그램-TYPE3

INPUT DATA 실 행 ***V1.0***

* ITEM NO.	E-1234		* DESCRIPTION	PES21	
* 재 질(1)	C.S		* Specific gravity	7.85	g/cm^3
* Vessel Type	HORI				
* LARGER SHEEL-1 GEOMETRY					
* Shell I.D-1	3200	mm	* External stiffener Q'ty-1	2	
* Shell TL to TL-1(Length)	7500	mm	* Shell thickness-1	13	mm
* Shell TL to TL-2(Length)	0	mm	* Shell thickness-2	0	mm
* Shell TL to TL-3(Length)	0	mm	* Shell thickness-3	0	mm
* SMALL SHEEL-2 GEOMETRY					
* Shell I.D-2	2438	mm	* External stiffener Q'ty-2	2	
* Shell TL to TL-1(Length)	3048	mm	* Shell thickness-1	12	mm
* JUNCTION SHEEL-2 GEOMETRY					
* Cone Straight Length Between Larger (Shell I.D-1) to Small (Shell I.D-2)				350	mm
* Cone thickness				13	mm
* Concentric Cone Q'ty Between Larger (Shell I.D-1) to Small (Shell I.D-2)				1	
* Eccentric Cone Q'ty Between Larger (Shell I.D-1) to Small (Shell I.D-2)				0	
* SMALL SHEEL-3 GEOMETRY					
* Shell I.D-3	2438	mm	* External stiffener Q'ty-2	2	
* Shell TL to TL-1(Length)	3048	mm	* Shell thickness-1	12	mm
* JUNCTION SHEEL-3 GEOMETRY					
* Cone Straight Length Between Larger (Shell I.D-1) to Small (Shell I.D-3)				250	mm
* Cone thickness				13	mm
* Concentric Cone Q'ty Between Larger (Shell I.D-1) to Small (Shell I.D-3)				1	
* Eccentric Cone Q'ty Between Larger (Shell I.D-1) to Small (Shell I.D-3)				0	
LARGER SHELL SIDE ****** HEAD COVER GEOMETRY ******SMALL SHELL SIDE					
* Head type-1	2:1 ELLIP		* Head type-2	2:1 ELLIP	
* Head Q'ty-1	1		* Head Q'ty-2	1	
* Head used thickness-1	20	mm	* Head used thickness-2	18	mm
* SUPPORT AND OTHERS GEOMETRY					
			* Saddle(Leg)		

* Skirt Length	1500	mm	height(Base to Vessel bottom)	250	mm
* Nozzle pad thickness	13	mm	* Skirt thickness	10	mm
			* Support Type	SADDLE	
* Saddle web thickness	16		* Base Block Type	BASE-RING	
* Support Q'ty	2		* Lifting Lug Q'ty	2	
* Plate/Forging nozzle thickness	10	mm	* Baffle/Internals	0	Kg
* others-1, if required	0	Kg	* others-2, if required	0	Kg

BOOT SHELL DATA, If required

* Shell I.D	600	mm	* Shell Length (Body to T.L of Boot shell head	1524	mm
* Shell Thickness	8	mm	* Head used thickness	10	mm

NOZZLE & M/WAY COVER

* Nozzle cover size	8"(200A)	150#	* Nozzle cover Qty	2
* Nozzle cover size	24"(600A)	150#	* Nozzle cover Qty	2

NOZZLE & FLANGE DATA

NOZZLE SIZE	SCHEDULE	RATING	CON. TYPE	LENGTH	Q'TY
1"(25A)	SCH.160	150#	B/W	250	1
1"(25A)	SCH.160	150#	B/W	250	0
1"(25A)	SCH.160	150#	B/W	250	0
1"(25A)	SCH.160	150#	B/W	250	0
1"(25A)	SCH.160	150#	B/W	250	0
1"(25A)	SCH.160	150#	B/W	250	0
1"(25A)	SCH.160	150#	B/W	250	0

MATERIAL UNIT PRICE

* Shell/Head	900	₩/Kg	* Support	800	₩/Kg
* STD Flange	2500	₩/Kg	* Baffle/Internal	5700	₩/Kg
* Pipe/Forging	6000	₩/Kg	* Welding Rod	3800	₩/Kg
* Others	4000	₩/Kg			

FABRICATION UNIT PRICE

* 제관용접비	100000	₩/M/Day	* 간접비	10	%
* 기기 분류	PRES VESSEL(T<20)		* 이 윤	15	%
* 제관 효율 (6)	100%		* 검사비	FULL R/T	
* 도장비or산세비(7)	2-coating(75㎛)		* 설계비	YES	

* 열처리비(8)	YES		* 포장비	YES	
* 가공비(9)	YES		* 운송비(FOB)	YES	
* 조립비	NO		* 포장 Factor	1Wx1H	
* 보온/보냉	NO		* 도장비 단가(11)	25000	₩/m^2
* 제관용접비	950	₩/Kg	* 보온/보냉단가(12)	57000	₩/m^2
* 경판성형비	1250	₩/Kg	* 셀/노즐벤딩비	370	₩/Kg
* 열처리 단가	160	₩/Kg			
* R/T 필름단가	7500	₩/SH	* U/T 단가	7500	₩/m
* Currency Rate	960	₩/US$	* 수압비용	3000	₩/m^3
* 도면 매수	15	SH	* STAMP 여부	YES	
* 도면 단가	200000	₩/SH	* 강도계산 단가	500000	₩

MATERIAL-FABRICATION 추가비용

* 부품재료비-1, 기타	0	₩	* Bolt/Nut,Gasket	0	₩
* 가공비용,기타	0	₩	* 설계비용,기타	0	₩
* 제관비용,기타	0	₩	* 검사비용,기타	0	₩
* 운송비,기타조건-1	0	₩	* 운송비,기타조건-2	0	₩
* 조립비,기타	0	₩			

FABRICATION WELDING DATA

* Welding process-Body	SMAW	* Nozzle inside welding	YES
* Welding process-Nozzle	SMAW	* Nozzle-Pad welding	YES
* Welding Groove type	SING-V	* Nozzle-Flange welding	YES
* Groove Angle-Body	75	* Nozzle attchment Type	FULL PEN
* Groove Angle-Nozzle	45	* Welding Overlay	20%

RESULT OF CALCULATION

NET WEIGHT SUMMARY

* Shell	13,589	Kg	* Head	3,286	Kg
* Pipe/Forging	1	Kg	* STD Flange	0	Kg
* STD Flange Cover	414	Kg	* Support	1,495	Kg
* Baffle/Internals	0	Kg	* 용접봉소요량-표준	281	Kg
* Others	0	Kg	용접봉 총소요량-표준 대비/총중량	1.5%	
* Total Net		Kg	* Total Gross		Kg

Weight	18,784		Weight	20,475	

FABRICATION INFORMATION

* Total surface Area	173	M^2	* Total Req'd Paint(11)	43	ℓ
* Total Volume	99.2	M^3			
* Total welding length-Shell/Head side	87,854	mm	* Total welding length-Nozzle opening side	105	mm
* Required R/T-SHELL&HEAD side	351	SH	* Required U/T-Nozzle side	0.1	m
* 용접봉소요량-계산-SHELL&HEAD	293	Kg	* 용접봉소요량-계산-NOZZLE	1	Kg
* 용접봉 총소요량-계산	293	Kg	* 용접봉 총소요량-계산 대비/총중량	1.6%	

MATERIAL PRICE SUMMARY

* Shell	13,452,835	₩	* Head	3,253,328	₩
* Pipe/Forging	8,630	₩	* STD Flange/Cover	1,034,000	₩
* Internals	0	₩	* Support	1,203,674	₩
* Others	0	₩	* Welding Rod	1,114,466	₩
* 소모품	568,574	₩			

FABRICATION COST SUMMARY

* 재료비 합계	20,635,507	₩	24.4%	O.K
* 제관용접	17,845,191	₩	38.5%	O.K
* 보온/보냉	0	₩	0.0%	N/A
* 도장/산세	7,778,324	₩	16.8%	O.K
* 열처리비	3,005,506	₩	6.5%	O.K
* 가공비	9,136,049	₩	19.7%	O.K
* 조립비	0	₩	0.0%	N/A
* 검사비	2,930,855	₩	6.3%	O.K
* 설계비	4,200,000	₩	9.1%	O.K
* 포장비	178,452	₩	0.4%	O.K
* 운송비	1,249,163	₩	2.7%	O.K
* 제관비 합계	46,323,540	₩	54.7%	O.K
* 간접비	6,695,905	₩	7.9%	
* 이 윤	11,048,243	₩	13.0%	

* 총원가	84,703,194	₩	100.0%		
* 제관용접비 단가	950	₩/Kg	* Tonage Price	4,509,228	₩/톤
* 제관비 Man Hour	2,574	M/Hr	* Tonage Price	2.13	US$/Lbs
* 제관 M/Day	178	M/day	* 제관소요일	1.2	개월/EA

* Note

1. Lifting Lug 중량은 중량별 표준 사양으로 계산됨.

2. Nozzle Pad 중량은 표준 사이즈 적용됨.

3. Others 중량은 프로그램에서 지원되지 않은 중량임.

4. Net weight에는 용접봉 중량 제외됨.

5. 재료비 합계는 Gross weight 기준임.

6. Welding Process (SMAW-55%), (FCAW-80%), (SAW-90%), (GTAW-90%)를 반영한 작업효율임.

7. 도장비 원가 산출 기준은 ₩/m^2.coating 임.

8. 열처리 비용 산출은 중량 기준임.

9. 가공비는 경판성형비 및 Shell, Pipe 벤딩 가공비임.

10. 운송비는 FOB기준임.

11. 도장비 단가는 재료비 포함 단가이며, 한 면 기준임.

12. 보온/보냉에는 재료비 포함됨.

13. 재료비에는 소모품비(원자재비의 3%) 금액이 포함됨.

14. 용접봉 표준 소요량은 M당, 두께당 산출 소요량임

** 원가 산출 항목 중 프로그램 산출과 조건이 다를 경우는 해당 항목을 "NO"로 처리함.

--> 사용자 유의사항

엔지니어링웹스크립-->

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