

PROJECT NAME	KHO XĂNG DẦU	OBJECT	BƠM ĐẾN KHO 750M3	DATE	Rev.00	CP.No.
ITEM	FOAM	CONTENTS	Piping Friction Loss Calculation	2014-9-3 6:35 PM		

SECTION		1-2		2-3		3-4		4-5		5-6		6-7		7-8		8-9		9-10		10-11		11-12		12-13		13-14						
Kind of PIPE	※	SGP		SGP		SGP		SGP		SGP		SGP		SGP		SGP		SGP		SGP		SGP		SGP		SGP						
PIPE SIZE (A)		150A		125A		100A		100A		100A		100A		100A		100A		100A		100A		100A		100A		32A						
PIPE DIAMETER		15.52		13.08		10.53		10.53		10.53		10.53		10.53		10.53		10.53		10.53		10.53		10.53		3.57						
Capacity(L/min)		3132		1632		1632		1632		1428		1224		1020		816		612		408		204		136		68						
PIPE LENGTH		12.0		101.0		39.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.8		4.0		4.3						
L 90°	2	2.5	3	2.1	3	1.7		1.7		1.7		1.7		1.7		1.7		1.7		1.7		1.7	1	1.7	1	1.1						
T (Separate)		5.0		6.3		5.1		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		1.7		1.1		0.0		0.0		0.0
		7.0		5.9		4.7		4.7		4.7		4.7		4.7		4.7		4.7		4.7		4.7		4.7		2.2						
		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
GATE VALVE	2	1.0	1	0.8	1	0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.2						
		2.0		0.8		0.7		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
STOP VALVE	2	12.9	1	10.9		8.7		8.7		8.7		8.7		8.7		8.7		8.7		8.7		8.7		8.7		3.0						
		25.8		10.9		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
ANGLE VALVE		26.0		21.9		17.6		17.6		17.6		17.6		17.6		17.6		17.6		17.6		17.6		17.6		6.0						
(Hydrant Valve)		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
Foot Valve	1	12.9		10.9		8.7		8.7		8.7		8.7		8.7		8.7		8.7		8.7		8.7		8.7		3.0						
		12.9		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
DELUGE VALVE		80.7		70.9	1	47.6		47.6		47.6		47.6		47.6		47.6		47.6		47.6		47.6		47.6		11.9						
		0.0		0.0		47.6		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
L 45°		0.9		0.8		0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.5						
		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
Cross Header		-		-		-		-		-		-		-		-		-		-		-		-		-						
		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
Y-type strainer	1	51.8		43.2		34.5		34.5		34.5		34.5		34.5		34.5		34.5		34.5		34.5		34.5		11.1						
		51.8		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
Siamese		0.0		0.0		38.3		38.3		38.3		38.3		38.3		38.3		38.3		38.3		38.3		38.3		0.0						
		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
Flexible Tube																																
		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
QUITABLE LENGTH		97.5		18.0		53.4		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		1.7		1.1		0.0		0.0		0.0
TOTAL LENGTH		109.5		119.0		92.4		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.8		5.7		5.4		0.0		0.0		0.0
LOSS COEFFICIENT		5.59		3.85		11.06		11.06		8.64		6.50		4.64		3.07		1.81		0.86		0.24		0.12		6.00		0.00		0.00		0.00
HEADER 65A																																
HEADER 30A																																

PIPE LOSS	h1	22.80	m	(h1: Tổn thất dọc đường + tổn thất cục bộ)
EMISSION PRESS.	h2	35.00	m	(h2: Áp lực yêu cầu tối thiểu tại đầu phun)
HEIGHT	h3	10.00	m	(h4: Chiều cao từ chân bơm đến điểm tính toán)
HOSE LOSS	h4		m	(h4: Tổn thất trong cuộn vòi)
ALARM LOSS	h5		m	(h5: Tổn thất tại van báo động)
ORIFICS LOSS	h6	3.00	m	(h6: Tổn thất tại bộ trộn foam)
			m	
SUBTOTAL LOSS		70.80	m	(Tổng tổn thất)
TOTALx1.1		77.88	m	(x Hệ số an toàn 1.1)
ADD.LOSS		0.00	m	
TOTAL LOSS		77.88	m	(Cột áp tối thiểu cần thiết của bơm)

Select PUNP									
φ	150	x	3132	L/min x	78.0	m x	85.0	kw	
				MAX		m			