

PNEU DILUTE PRESSURE

PRESSURE DILUTE PHASE SIZING CALCULATION

version 3.06

abr-08

Pneu Solutions

INPUTS			UNITS		METRIC CONVERSION UNITS			
					inputs		results	
PRODUCT FRICTION FACTOR	3	1-LOW, 8-HIGH			12.000	kg/hr	26.460	lbs/hr
VELOCITY FACTOR	14	11-LIGHT TO 21-HEAVY						
PRODUCT CONVEY RATE	26.460	LBS/HR						
SITE ATMOSPHERIC PRESSURE	14,7	PSIA			1,01	bar	14,65	psi
MIN AIR/GAS TEMPERATURE	23	DEG F			-5	degC	23	degF
MAX AIR/GAS TEMPERATURE	122	DEG F			35	degC	95	degF
MIN MIX TEMP AT PICK-UP	150	DEG F			21	degC	69,8	degF
MAX MIX TEMP AT DESTINATION	175	DEG F			21	degC	69,8	degF
INPUT TERMINAL VELOCITY	4.922	FT/MIN			25	m/s	4922	ft/min
PIPE SECTION 1								
INSIDE PIPE DIAMETER	6,06	INCHES			154	mm	6,06	inches
HORIZONTAL DISTANCE	131,2	FT			40	meters	131,2	feet
VERTICAL DISTANCE	16,4	FT			5	meters	16,4	feet
90 DEGREE ELS	3	QTY						
PIPE SECTION 2								
INSIDE PIPE DIAMETER	6,06	INCHES			154	mm	6,06	inches
HORIZONTAL DISTANCE	65,6	FT			20	meters	65,6	feet
VERTICAL DISTANCE	49,2	FT			15	meters	49,2	feet
90 DEGREE ELS	1	QTY						
PIPE SECTION 3								
INSIDE PIPE DIAMETER	6,06	INCHES			154	mm	6,06	inches
HORIZONTAL DISTANCE	65,6	FT			20	meters	65,6	feet
VERTICAL DISTANCE	0	FT			0	meters	0,0	feet
90 DEGREE ELS	1	QTY						
ADDITIONAL LOSSES			UNITS					
INLET FILTER	1	QTY						
INLET SILENCER	1	QTY						
DISCHARGE SILENCER	1	QTY						
DISCHARGE COOLER	1	QTY						
DISCHARGE FILTER	1	QTY						
BUTTERFLY VALVES, CLEAN GASLINE	2	QTY						
FLEX HOSE, CONVEYLINE	6,6	FT			2	meters	6,6	feet
FLEX HOSE, CLEAN GASLINE	0	FT			0	meters	0,0	feet
CLEAN GAS LINE SIZE	6,06	INCHES			154	mm	6,06	inches
CLEAN GAS LINE LENGTH	49,2	FT			15	meters	49,2	feet
CLEAN GAS LINE BENDS	4	QTY						
RETURN GAS LINE SIZE	6,06	INCHES			154	mm	6,06	inches
RETURN GAS LINE LENGTH	0	FT			0	meters	0,0	feet
RETURN GAS LINE BENDS	0	QTY						
MISC PRESS DROP, CLEAN GASLINE	0	INCH H2O			0	Kpa	0,0	inch H2O
MISC PRESS DROP, CONVEYLINE	0	INCH H2O			0	Kpa	0,0	inch H2O
MISC PRESS DROP, RETURN GAS LINE	6	INCH H2O			1,5	Kpa	6,0	inch H2O

OPERATING RESULTS		UNITS	NOTES	METRIC RESULTS
MIN. ALLOWABLE PICK-UP VELOCITY	3386	FT/MIN		17,2 m/s
CALCULATED PICK-UP VELOCITY	3581	FT/MIN	PICK-UP VELOCITY IS OK	18,2 m/s
STEP 1 VELOCITY	4271	FT/MIN	STEP 1 VELOCITY IS OK	21,7 m/s

STEP 2 VELOCITY	4577	FT/MIN	STEP 2 VELOCITY IS OK	23,2 m/s
FINAL (TERMINAL) VELOCITY	4851	FT/MIN		24,6 m/s
BLOWER DISCHARGE PRESSURE	5,9	PSIG		0,40 barG
TOTAL BLOWER DIFFERENTIAL PRESS.	6,2	PSI		0,43 bar
CONVEY GAS FLOW	823	SCFM		23,3 m3/min
MATL-TO-GAS RATIO	7,15	LBS/LBS	MATL:GAS RATIO IS OK	7,15 kg/kg
AIRLOCK LEAKAGE (INPUT)	54	SCFM		1,5 m3/min
MISCELLANEOUS LEAKAGE (INPUT)	0	SCFM		0,0 m3/min
TOTAL GASFLOW REQUIRED	877	SCFM		24,8 m3/min
MOTOR HP AT OPERATING PRESSURE	24	HP		18 KW

DESIGN CONDITIONS SUMMARY

TOTAL GASFLOW + 20%	1052	SCFM		29,8 m3/min
RELIEF PRESS RECOMMENDED	8,0	PSIG		0,55 barG
MOTOR HP AT RELIEF PRESSURE	42	HP		32 KW

CUSTOMER/PROJECT INFO

Customer name: _____
Date of calculation: _____
Customer project: _____
Internal project: _____
Notes: _____