

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	0	DEG F	-18	degC	-0,4	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	7.874	FT/MIN	40	m/s	7874	ft/min		
PIPE SECTION 1								
INSIDE PIPE DIAMETER	4,49	INCHES	114	mm	4,49	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	4,49	INCHES	114	mm	4,49	inches		
HORIZONTAL DISTANCE	65,6	FT	20	meters	65,6	feet		
VERTICAL DISTANCE	32,8	FT	10	meters	32,8	feet		
90 DEGREE ELS	1	QTY						
PIPE SECTION 3								
INSIDE PIPE DIAMETER	4,49	INCHES	114	mm	4,49	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	1	FT	0	meters	0,0	feet		
FLEX HOSE, CLEAN GASLINE	0	FT	0	meters	0,0	feet		
CLEAN GAS LINE SIZE	4,49	INCHES	114	mm	4,49	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	2915	FT/MIN		14,8 m/s
CALCULATED PICK-UP VELOCITY	4656	FT/MIN	PICK-UP VELOCITY IS OK	23,7 m/s
STEP 1 VELOCITY	6173	FT/MIN	STEP 1 VELOCITY IS OK	31,4 m/s
STEP 2 VELOCITY	6964	FT/MIN	STEP 2 VELOCITY IS OK	35,4 m/s
FINAL (TERMINAL) VELOCITY	7760	FT/MIN		39,4 m/s
BLOWER DISCHARGE PRESSURE	10,5	PSIG		0,72 barG
TOTAL BLOWER DIFFERENTIAL PRESS.	10,8	PSI		0,74 bar
CONVEY GAS FLOW	723	SCFM		20,5 m3/min
MATL-TO-GAS RATIO	8,14	LBS/LBS	MATL:GAS RATIO IS OK	8,14 kg/kg
AIRLOCK LEAKAGE (INPUT)	54	SCFM		1,5 m3/min
MISCELLANEOUS LEAKAGE (INPUT)	0	SCFM		0,0 m3/min
TOTAL GASFLOW REQUIRED	777	SCFM		22,0 m3/min
MOTOR HP AT OPERATING PRESSURE	37	HP		27 KW

DESIGN CONDITIONS SUMMARY

TOTAL GASFLOW + 20%	932	SCFM		26,4 m3/min
RELIEF PRESS RECOMMENDED	14,0	PSIG		0,97 barG
MOTOR HP AT RELIEF PRESSURE	66	HP		49 KW

CUSTOMER/PROJECT INFO

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