Design and calculation book of the throttle device

Design standard GB / T 2624-2006 / ISO 5167-1

Ordering unit:				design number:	22
contract NO:		installation site:		way to install:	
Balancing parts:	Classic Venturi tube	Method of taking pressure:	Mean pressure ring to take pressure	Fluid name:	Liquid nitrous oxide
Supply content:				quantity:	1
appendix:					
Form: a single 90° elbow, two 90° bends on any plane (S> 30D)					

process conditions

Flow value status: Working status					
maximumflow:	8.46 m³/h	Common flow:	6.76 m³/h	minimum flow:	2.82m³/h
Worksheet pressure:	6.90000MPa	working temperature:	-65.00℃	Operation density:	1148.800 kg/m³
Regional atmospheric pressure:	1000 mbar	pipeline:	φ48.3X5 mm	Fluid viscosity:	0.0130 mPa.s
Absolute pipe wall roughness:	0.075mm				
Pipe material:	304	linear expansivity:	0.00001660 mm/mm℃		
Material of throttle parts:	304	linear expansivity:	0.00001660 mm/mm℃		

computing result

Scale flow:	8.46 m³/h	DBP ceiling △ Pmax:	25000.00 Pa		
Maximum pressure loss:	3125 Pa	Common differential pressure: △ Pcom:	15962 Pa		
Open hole than oneself:	0.545442	efflux coefficient C:	0.995000	Expandable factor:	1.000000
Maximum Reynolds number:	6913428	Common Reynolds:	5524205	Minimum Reynolds number:	2304476
calculation error E:	0.00%	Flow uncertainty e:	± 1.02%	discharge coefficient α:	1.042191
Front straight pipe section L1:	0.36 m	Rear straight pipe section L2:	0.00m		
Opening hole d: 20.861mm under working conditions					
20℃ Time Flow Part Opening d20:20.89 ± 0.01mm					
Calculation formula: Q= 0.003998595 * d 2 * * * (△ P /) ^ 0.5 m³ / h Density compensation formula: qv= 1.813521 * （△P/ ρ）^0.5 m³/h					

remarks:

design:

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