Inline Partikelmessung

IPP 80-P inline particle-measuring probe

The IPP 80-P was developed as a probe for the inline measurement of the particle size distributions of powders, granulates and pellets in pharmaceutical fluidised bed, high-shear and similar processes. Wherever there are demanding requirements with regard to cleanliness, cleanability and hygiene, this is a valuable PAT tool for implementing modern production processes based on the quality-by-design principle.

When used in combination with a measuring PC including measuring software, the IPP 80-P makes it possible to determine the current particle size distribution (e.g. Q0, Q3) and the attributes of this distribution (x10, x50, x90, etc.) in the particle streams of potentially explosive process chambers in zones "0"/"20".

Its dimensions and accessories make it compatible with the predecessor model IPP 70. It is also made completely of stainless steel, and has self-monitoring functions. The entire measuring system consists of the IPP 80-P, the process interface, the barrier box for Ex-zone separation and a measuring PC with measuring program. The measured results can be made available to a higher-level control system via optional interfaces.

➢ Technical details

Particle size measurement range	50...6000 µm
Particle velocity measurement range	0.01…50 m/s
Particle volume concentration	For particles <1 mm, up to approx. 12 vol.%, for larger particles, up to approx. 30 vol.%
Measuring rate	up to 20,000 particles/s
Products	Powder, pellets, granulates...
Process temperature/pressure	–20°C to +100°C / <4 bar
Material, in contact with product	stainless steel (L316), sapphire, epoxy resin
Probe tube dimensions (length/diameter)	280 × 25 mm (optionally 380 × 25 mm)
Electronics-housing dimensions (diameter/depth)	90 x 60 mm
Electronics-housing temperature	–10°C to 60°C
Housing protection class	IP65
Light source	Laser (laser class 1)
Power consumption	2 W (typ.)
Interfaces	Particle distributions and attributes as an ASCII file (Excel compatible), Optional: 4…20 mA, TCP/IP, OPC
ATEX certificate	IBExU14ATEX1247
Probe identification	II 1/2G Ex ia op is IIB T4 Ga/Gb II 1/2D Ex ia op is IIIC T125°C Da/Db
Barrier-box identification	II (1)G [Ex ia Ga] IIB II (1)D [Ex ia Da] IIIC

➢ Accessories (process interface)

D24 disperser	For high load/high fine content – particles up to <2000 µm, clearance 3.8 mm
D12 disperser	As for D24, but also for larger particles >2000 µm, clearance 7.5 mm
SZ11, SZ20-4 cleaning cells	With low load for cleaning the probe optics without diluting the flow of particles
Compressed-air unit	Compressed-air supply for the probe when using dispersers or cleaning cells

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