Ultra-cold air generator

- easy to install and operate
- no moving parts, small and lightweight
- no use of CFC and chemical agent
- no spark hazard, RFI/EMI
- instant ON/OFF, easy to control
- maintenance free, durable construction

Applications

For a variety of spot cooling such as :

- Cooling metal machining process
- Cooling plastic machining process
- Air conditioning control box
- Precision spot cooling on mold tool
- Cooling food processing

- improve tool life, allow for high speed machining
- reduce tool wear, no heat deformation, ensure exacting tolerance
- eliminate liquid coolants, no hazardous mists
- no washing needed by keeping work-piece clean
- clean and safe operation by blowing off tips
- clean floor and people at work, safe operation
  free from corrosion caused by additives to oils.
- no skills are required, reduce operational cost
- free from stress cracking on work-piece

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Option

Models		160-65SV	185-65SV 190-75SV
Optional Lock nut (for mounting)	Thread standard	M20x1	M28x1
	Panel hole diameter	20㎜	28㎜
	Panel thickness max.	2.3㎜	2.3㎜
	Parts No.	RN20	RN28

Product warranty

Sanwa warrants its products contained in this catalogue against defects of workmanship and/ or material for 60 days from the date of sale by Sanwa. This warranty is void if the product is misused, tampered with or used in a manner that is not in accordance with Sanwa's recommendations and/or instructions. Due to inability to be familiar with actual conditions of use or application by all customers of Sanwa's products, Sanwa is not liable for consequential or other damages including, but not limited to, loss, damage, personal injury, or any other expense directly or indirectly arising from the use of or inability to use its products either separately or in combination with other products.
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Remedy under this warranty is limited to replacement of the product. All allegedly defective products must be returned to Sanwa, together with information describing the product's performance, unless disposition in the field is authorized in writing by Sanwa.

All design and dimensional data and other data shown in this catalogue is subject to change without notice. Working pressures, data and other technical information have been prepared from actual test results and other data considered to be reliable. However, no responsibility can be assumed for the accuracy of this information which varies under field conditions and this information should be considered as a recommendation only and not a guaranty or warranty.
Great care has been taken in the preparation of this catalogue, however, Sanwa is not responsible for typographical errors and omissions contained herein and damages arising therefrom.

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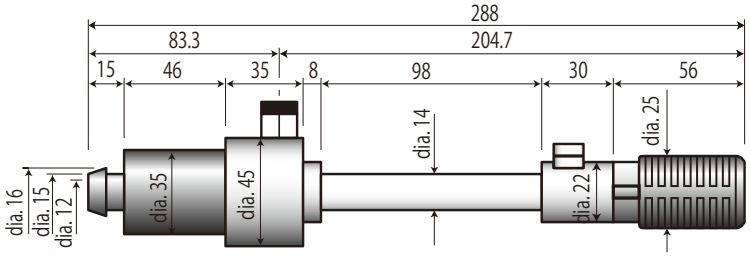
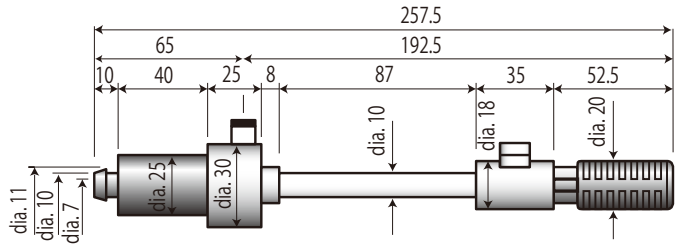
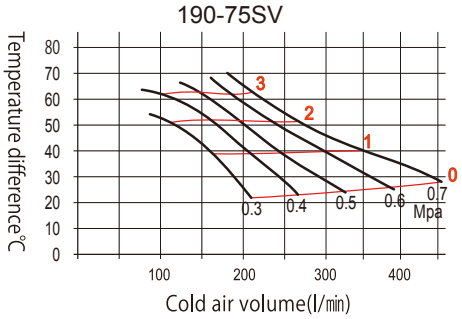
Dimensions

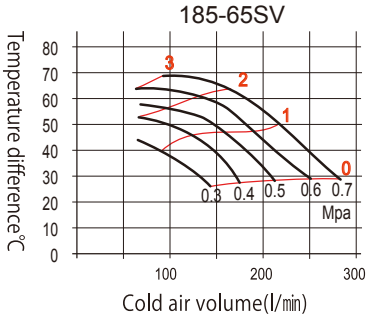
MODEL 190-75 & 185-65SV

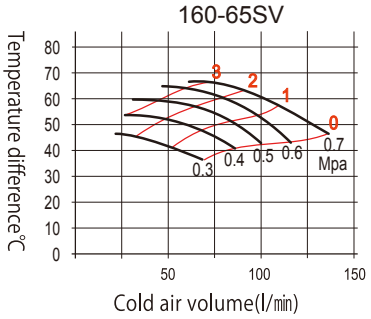


MODEL 160-65SV









Graph B-1

0,1,2,3: Number of turn of control knob

Performance--------In case of the generator 190-75SV

In case compressed- air pressure is 0.7Mpa, the generator consumes 650 l/min of air(Refer to graph A-1). The temperature difference between cold air and compressed-air as well as cold air volume can be regulated with control knob. For instance, if you turn the knob 360 degree from complete closed position, you can obtain cold air of 350 l/min with the temperature difference of 40℃ . (Refer to graph B-1. Difference of the temperature on the graph was measured by digital temperature gauge at about 50~60㎜ inside from the cold air outlet to minimize influence of the ambient air.)
For specific applications, choose the combinations of cold air temperature and volume as needed with control knob.

Performance of each model

Models	Pressure of supplied air (Mpa)	0.3	0.4	0.5	0.6	0.7
190-75SV	W *1	158 1.5	204 1.5	253 2	294 2	343 2
185-65SV	W *1	94 0.5	142 1	184 1	232 1.5	279 1.5
160-65SV	W *1	57 0	81 0	105 1	123 1	156 1

* 1) Number of turn of control knob : Anti-clockwise turn of control knob from fully turned position.
* Operational conditions: Ambient air temperature 20℃ , compressed-air temperature at inlet 20℃ , dry air(dew point -40℃).
* Note that above figures are for reference only and vary according to the actual operational conditions.

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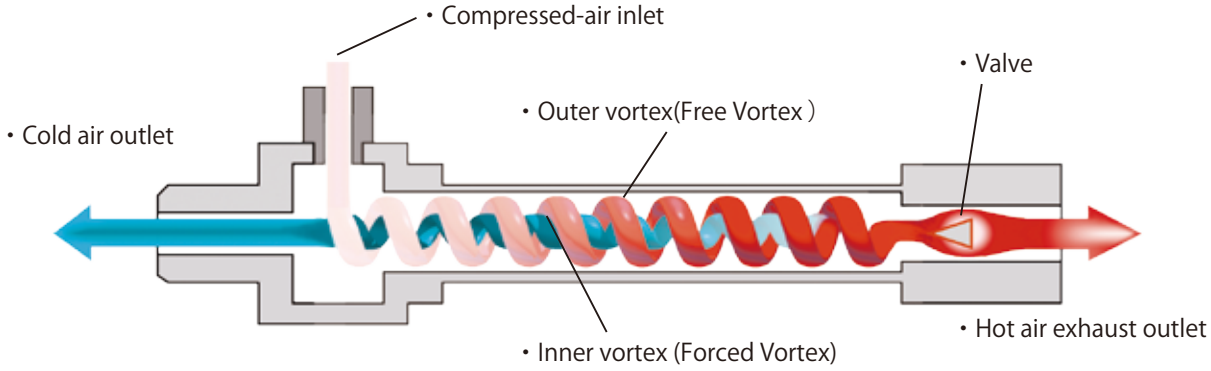
Δt max. 70℃ Ultra-cold air generator

The generator uses nothing but compressed-air and uses neither electric power nor chlorofluorocarbon(CFC) which is one of the factors of environmental destruction. Just connect the generator to the compressed-air line to obtain the air at -50℃ (in case using compressed-air at +20℃ with 0.7Mpa(7kg/㎠) on the generator model 190-75SV).
The ultra-cold air is most typically applied to the removal of heat generated in the process of machining, cutting metals and plastics. The generator performs excellently particularly on the materials with hardness and viscosity such as titanium alloy, stainless steel, super-alloy, thermo-plastics etc.
Cooling effect on the work piece and tool increases machining speed and extends tool life.
The generator has been utilized, producing remarkable results, for a variety of spot cooling such as cooling electrical and instrumental enclosures to prevent troubles caused by heat, mold tools, semiconductors and PC base for test and further, dry machining of magnesium alloys.

Mechanism for generating ultra-cold air

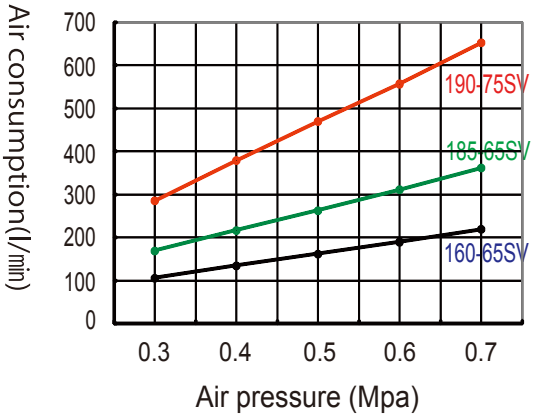


Performance of the generator models

Models	Compressed-air(Mpa)	Air consumption (l/min.)	Cold air ratio(%)	Lowest temp. obtained(℃) *1	Max. temp. difference (℃)	Weight(g)	Compressor capacity *2
190-75SV	0.3 ～ 0.7	290 ～ 650	20 ～ 85	-50	70	335	5KW ～
185-65SV	0.3 ～ 0.7	170 ～ 360	20 ～ 85	-45	65	335	3.5KW ～
160-65SV	0.3 ～ 0.7	110 ～ 220	15 ～ 70	-45	65	147	2KW ～

*1 In case of compressed-air pressure 0.7Mpa, intake air temp.20℃ (without silencer)
*2 Compressor capacity to obtain Lowest temp.

Graph A-1



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