



Diameter 299 - 1.011 mm

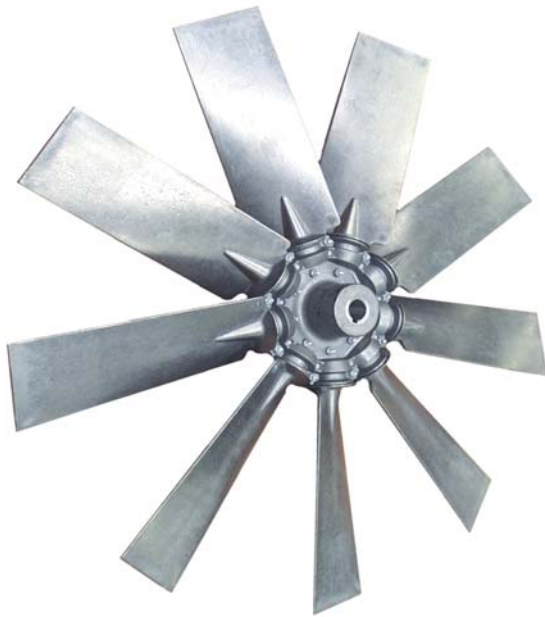
Series R reversible impellers

R4Z

industrial plants, especially for the desiccation of timber



## R4Z



The R4Z-series of axial impellers has been developed for applications requiring reversible operation. The symmetrical blade profile allows reversed operation in order to move an equal air volume in either direction.

Compared to the common compromise, where every second blade is turned by 180°, the WingFan series R4Z offers the following advantages:

- / **Improved efficiency**
- / **Lower absorbed power**
- / **Lower noise levels**

## Z-Series Blades

Impeller diameters range from 299 to 1.011 mm with pitch angles from 15° to 40° to meet your specific application requirements. The blades are mounted by means of a common blade root design (Patent No. 2439767). The patent has established this design as the worldwide standard.

The blades are fixed in the hub by means of a steel pin, ensuring a preset blade angle that cannot move or change under load. The blades are made from pressure die cast aluminium for temperatures ranging from -40°C to 150°C offering:

- **High strength to weight ratio**
- **Resistance to corrosion\***
- **Optimized impeller design for your specific application**
- **Dirt repelling due to the smooth surface**



## The Blade Material

### ALU \_\_\_\_\_

Die cast aluminium

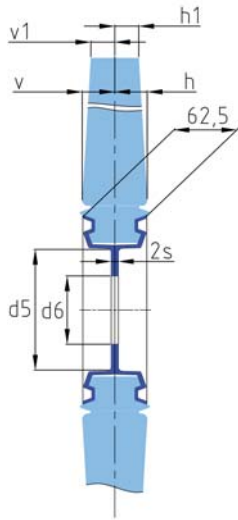
-60°F to +300°F

high temperature applications

For heavily corrosive atmospheres, the aluminium hubs could be supplied with a protective coating and stainless steel bolts and nuts.

Further material information is available on request.

## Flange Mount Version



Hub size *	IMPELLER Diameter D		Spigot hole		HUB		Thick-ness s
	min	max	min	max	face dia max		
5	299 - 785		12	55	76		3,5
7	336 - 822		24	83	115		3,5
8	416 - 902		15	165	190		3,5
9	350 - 836		25	95	131		3,5
12	430 - 916		25	170	208		4
16	525 - 1.011		40	240	302		4

## Leading / Trailing Edge

$v = h (+/- 2)$

Series	15°	20°	25°	27,5°	30°	32,5°	35°	40°
R4Z	20	24	28	29	32	35	36	38

$v_1 (+/- 4)$

Series	15°	20°	25°	27,5°	30°	32,5°	35°	40°
R4Z	1	5	8	10	13	16	18	21

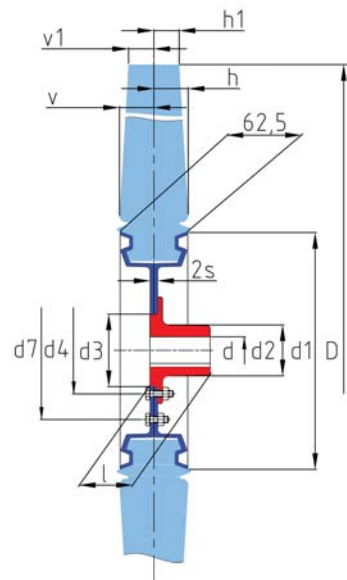
$h_1 (+/- 4)$

Series	15°	20°	25°	27,5°	30°	32,5°	35°	40°
R4Z	-3	0	7	7	13	15	18	19

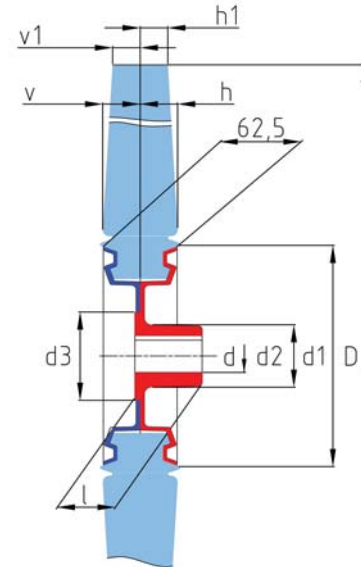
The measurements  $v_1$  and  $h_1$  are valid for the maximum impeller diameter. For smaller impeller diameters the information is available on application.

\* Maximum number of blades in the hub

## Shaft Mount Version



with flange hub



with hub flange (5-bladed)

Hub size *	IMPELLER Diameter D		shaft size		flange hub		HUB			Bolt pattern	
	min	max	min	max	length l	Ø d2	outer d1	Thickness s	Spigot hole dia d3	inner d4	outer d7
5	299 - 785		12,00	25,40	42	44	145	3,5	55	-	-
7	336 - 822		10,00	17,00	31	28	186	3,5	74,75	5 x M6 on BCD 90	-
			12,70	22,23	42	40					
			22,00	25,40	52	45					
			22,00	31,75	62	51					
			34,00	42,00	82	73					
8	416 - 902		10,00	17,00	31	28	266	3,5	74,75	5 x M6 on BCD 90	8 x M6 on BCD 176
			12,70	22,23	42	40					
			22,00	25,40	52	45					
			22,00	31,75	62	51					
			34,00	42,00	82	73					
41,00	50,80	112	90								
9	350 - 836		10,00	17,00	31	28	200	3,5	74,75	5 x M6 on BCD 90	-
			12,70	22,23	42	40					
			22,00	25,40	52	45					
			22,00	31,75	62	51					
			34,00	42,00	82	73					
41,00	50,80	112	90								
12	430 - 916		10,00	17,00	31	28	280	4	74,75	5 x M6 on BCD 90	12 x M6 on BCD 185
			12,70	22,23	42	40					
			22,00	25,40	52	45					
			22,00	31,75	62	51					
			34,00	42,00	82	73					
41,00	50,80	112	90								
16	525 - 1.011		10,00	17,00	31	28	375	4	74,75	5 x M6 on BCD 90	16 x M6 on BCD 280
			12,70	22,23	42	40					
			22,00	25,40	52	45					
			22,00	31,75	62	51					
			34,00	42,00	82	73					
41,00	50,80	112	90								

\* Maximum number of blades in the hub

## Mounting Arrangement

WingFan impellers are suitable for all known methods of mounting. Examples include:

- Flanged mount
- Shaft mount (parallel and taper)
- Mounting with taperlock bushings

WingFan would be pleased to offer special fitting solutions to your specific application requirements.

### Flange Mount Version



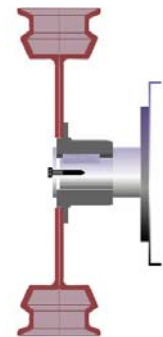
For this version the impeller is supplied with a spigot hole and bolt pattern according to user specifications. The impeller is centred on the spigot hole and fixed with suitable bolts.



### Shaft Mount Version



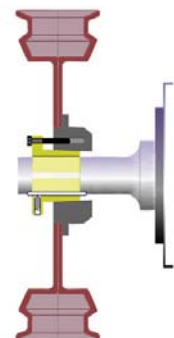
The boss face butts against the shaft shoulder and is located by either an axial bolt in the shaft end or with a radial grub screw. The drive torque is transmitted using a woodruff key.



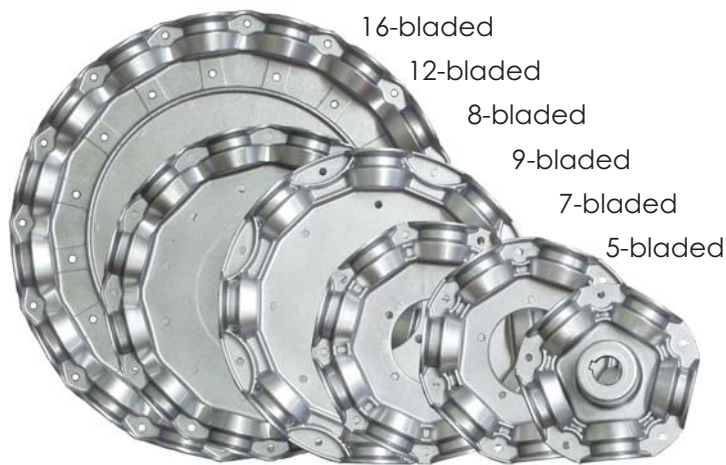
### Taperlock Version



With the taperlock version, the axial positioning of the impeller on the shaft is determined by the keyed taperlock bushing. A woodruff key transmits the drive torque from the shaft to the impeller.



## The Hubs



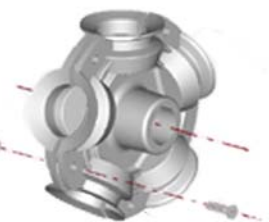
The Z-Series impeller utilizes six hub sizes ranging from 5-blade to 16-blade. The hubs are made from pressure die cast aluminium, inherently corrosion resistant and providing high strength for their low mass. They can be fitted with less than the maximum number of blades (ie - a 12-cavity hub can be fitted with just six blades while the remaining cavities are plugged with spacers. The impeller configuration changes from 12-12 to 6-12).

## Hub Design



The seven, eight, nine, twelve and sixteen blade hubs consist of two identical flange halves and an optional center boss.

The five blade hubs have an integral cast center boss on one flange half eliminating the need for a bolted center boss. For flange mounted applications, an optional flanged half hub is utilized.



A large assortment of flanged bosses is available for nearly all applications. Forged and heat treated flanged hubs are available for hydraulic drives with their small diameter shafts (parallel and tapered).

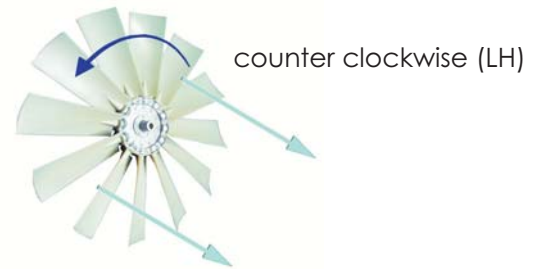
The bore diameter, key and, if required, grub screw are supplied to user specified requirements. Unique or special hubs can be machined from solid bar stock.



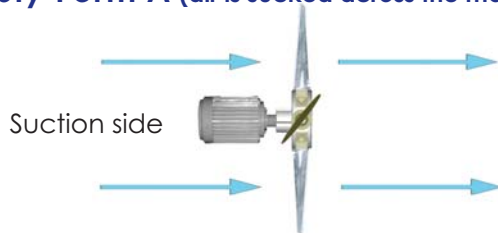
## Direction of Rotation

To determine the direction of rotation, the air must blow into the face of the observer. If the rotation is clockwise, then the direction of rotation is right handed – if counter clockwise, then left handed.

The series R4Z is manufactured only in the left handed version.



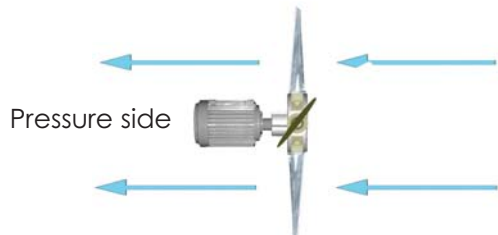
## Assembly Form A (air is sucked across the motor)



The assembly form is an indication of how the impeller should be fitted to the motor shaft. If the air is sucked across the motor (the drive motor is upstream of the impeller), then this is described as "Assembly form A".

If the drive motor is on the pressure side of the impeller (or downstream of the impeller), then we have "Assembly form B".

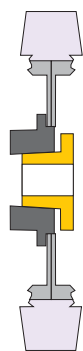
## Assembly Form B (air is blown over the motor)



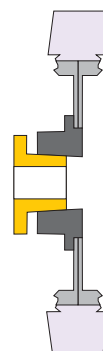
As the motor can be positioned on the induction or pressure side depending on the direction of rotation of the impeller (reversible operation), the mounting type "A" or "B" cannot be defined.

Therefore, the specification of the type of mounting is not necessary with the series R4Z.

## Assembly Form When Using a Taperlock Bushing

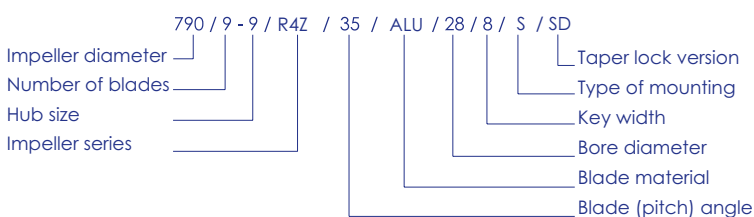


Assembly form S (straight)



Assembly form R (reverse)

## Ordering code\*



\*For flange mounted impellers, the following information is required:

- Spigot hole diameter
- The number and size of bolt holes including bolt circle dimension (BCD).
- Additional information may be found at the website [www.wingfan.com](http://www.wingfan.com)

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