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WORLDIA
Carbide Rods



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COMPANY INTRODUCTION

Beijing Worldia Diamond Tools Co., Ltd. was founded in 2006 in Beijing Zhongguancun Science and Technology Park;

The Worldia Group currently has one branch and several wholly-owned subsidiaries. Among them, the two largest subsidiaries are Jiaxing Worldia Diamond Tools Co., Ltd. and Langfang Supower Diamond Technology Co., Ltd.;

The company is a high-tech enterprise mainly engaged in the research and development, production and sales of superhard cutting tools and superhard material products;

The products are involved in many well-known enterprises in the fields of optoelectronic display industry, photovoltaic, wind power, semiconductor, electronic equipment manufacturing at home and abroad, and have formed long-term and stable cooperative relations;

On July 22, 2019, worldia was officially listed on the STAR Market in Shanghai Stock Exchange. (Stock Code: 688028)

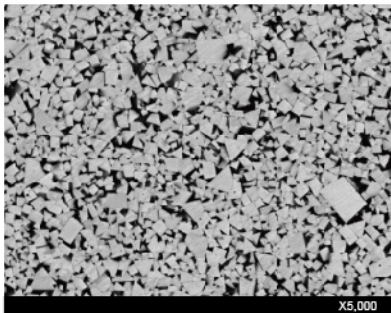
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Grade Introduction

Grade		WR10	WR12A	WR10A
ISO Grade		K20-K50	K10-K30	K05-K10
Wc+other carbides	%	90	88	90
Co	%	10	12	10
WC particle size		Submicron	Ultrafine	Ultrafine
Density	g/cm³	14.45	14.1	14.4
Hardness	Hv30	1540	1620	1660
	HRA	91.5	92.2	92.5
Transverse rupture strength	N/mm²	4253.2	4047.4	3944.5
	kpsi	620	590	575
Fracture toughness	Mpa.m½	14.7	13.8	12.8
	½			
Young's modulus	kpsi	80000	82860	85360
Compressive strength	kpsi	870	900	1015

PROPERTIES AND APPLICATION



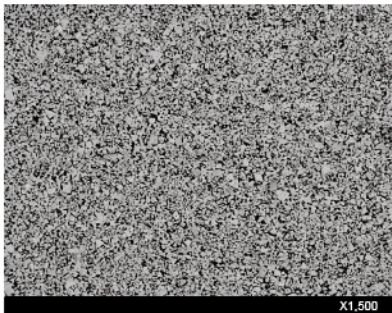
WR10

Properties

- Submicron grain WC with 10% Co
- High toughness and wear resistance

Application

- Medium cutting speed and feed
- For use on unalloyed engineering stell, stainless steel, nickel based alloys, titanium alloy, cast iron



WR12A

Properties

- Ultrafine grain WC with 12% Co
- Excellent toughness and wear resistance

Application

- High cutting speed and medium feed
- For use on carbon steel, stainless steel, nickelbased alloys, titanium alloy



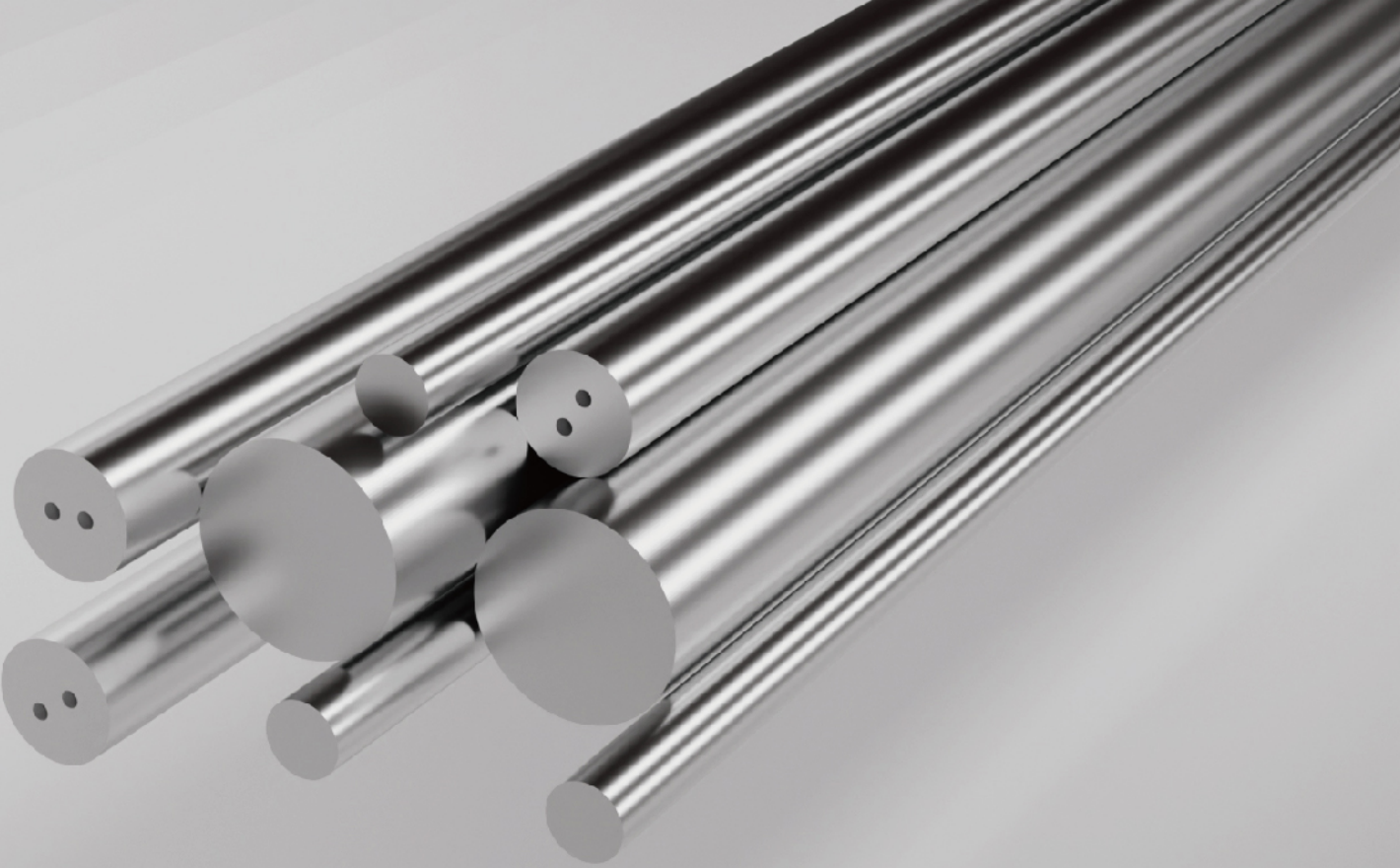
WR10A

Properties

- Ultrafine grain wc with 10% Co
- More excellent toughness and wear resistance

Application

- High milling speed and drilling
- For use on wood, paper, titanium alloy, fiber reinforced materials, aluminium alloy



IDENTIFICATION SYSTEM

Solid Rod

R

Shape

R: Round

S

Surface condition

S: Sintered

G: Ground to h6

F: Semi-finished ground (not to h6)

ø8.0

330

Diameter

ø8.0mm

Length

330mm

Rod With Holes

R

Shape

R: Round

S

Surface condition

S: Sintered

G: Ground to h6

F: Semi-finished ground (not to h6)

2

Coolant hole

1: One hole

2: Two holes

S

Hole type

S: Straight hole

H: 30°helix hole

J: 40°helix hole

1.2

/

4.0

Hole diameter

1.2mm

Hole distance

4.0mm

ø8.0

330

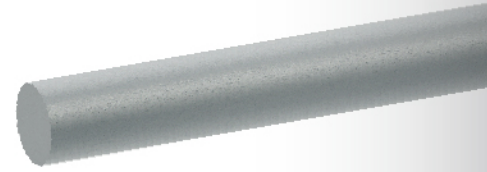
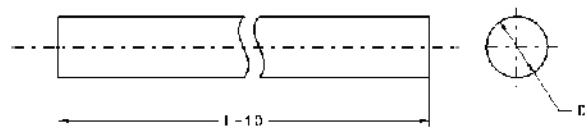
Diameter

ø8.0mm

Length

330mm

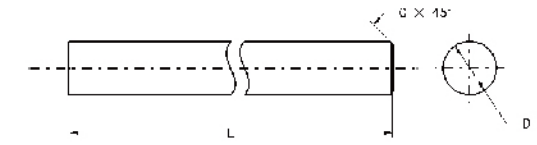
Unground Solid Rod - 330mm



Type	Dimension			Grade		
	øD(mm)	Tol. (mm)	L(mm)	WR10	WR12A	WR10A
RS ø1.0*330	1.0	+0.20~+0.50	330.0	●	△	
RS ø2.0*330	2.0	+0.20~+0.50	330.0	●	△	
RS ø3.0*330	3.0	+0.20~+0.50	330.0	●	△	
RS ø4.0*330	4.0	+0.20~+0.50	330.0	●	△	
RS ø5.0*330	5.0	+0.20~+0.50	330.0	●	△	
RS ø6.0*330	6.0	+0.30~+0.60	330.0	●	△	
RS ø7.0*330	7.0	+0.30~+0.60	330.0	●	△	
RS ø8.0*330	8.0	+0.30~+0.60	330.0	●	△	
RS ø9.0*330	9.0	+0.30~+0.60	330.0	●	△	
RS ø10.0*330	10.0	+0.30~+0.60	330.0	●	△	
RS ø12.0*330	12.0	+0.30~+0.60	330.0	●	△	
RS ø14.0*330	14.0	+0.30~+0.60	330.0	●	△	
RS ø15.0*330	15.0	+0.30~+0.60	330.0	●	△	
RS ø16.0*330	16.0	+0.30~+0.60	330.0	●	△	
RS ø18.0*330	18.0	+0.30~+0.80	330.0	●	△	
RS ø20.0*330	20.0	+0.30~+0.80	330.0	●	△	
RS ø22.0*330	22.0	+0.30~+0.80	330.0	●	△	
RS ø24.0*330	24.0	+0.30~+0.80	330.0	●	△	
RS ø25.0*330	25.0	+0.30~+1.00	330.0	●	△	
RS ø26.0*330	26.0	+0.30~+1.00	330.0	●	△	
RS ø28.0*330	28.0	+0.30~+1.00	330.0	●	△	
RS ø30.0*330	30.0	+0.30~+1.00	330.0	●	△	
RS ø32.0*330	32.0	+0.30~+1.00	330.0	●	△	

● In stock △ Limited stock or make-to-order ◆ New product

Ground Solid Rod (h6) With Chamfer - Short Length



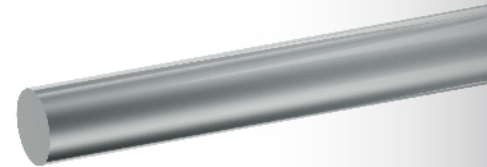
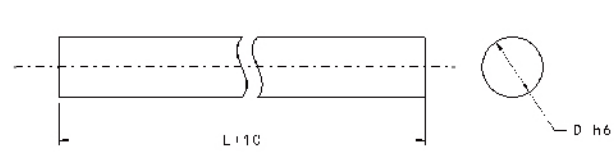
L(mm)	Tol.(mm)
L≤50	+0.8
50<L≤100	+1.5
100<L≤160	+2.0
160<L≤250	+3.0



Type	Dimension			Grade		
	øD(mm)	L(mm)	C(mm)	WR10	WR12A	WR10A
RG ø3.0*40	3.0	40	0.3	●	△	
RG ø3.0*50	3.0	50	0.3	●	△	
RG ø3.0*75	3.0	75	0.3	●	△	
RG ø3.0*100	3.0	100	0.3	●	△	
RG ø4.0*50	4.0	50	0.5	●	△	
RG ø4.0*60	4.0	60	0.5	●	△	
RG ø4.0*75	4.0	75	0.5	●	△	
RG ø4.0*100	4.0	100	0.5	●	△	
RG ø5.0*50	5.0	50	0.5	●	△	
RG ø5.0*75	5.0	75	0.5	●	△	
RG ø6.0*50	6.0	50	0.5	●	△	
RG ø6.0*55	6.0	55	0.5	●	△	
RG ø6.0*60	6.0	60	0.5	●	△	
RG ø6.0*75	6.0	75	0.5	●	△	
RG ø6.0*100	6.0	100	0.5	●	△	
RG ø7.0*50	7.0	50	0.5	●	△	
RG ø7.0*60	7.0	60	0.5	●	△	
RG ø7.0*100	7.0	100	0.5	●	△	
RG ø8.0*60	8.0	60	1.0	●	△	
RG ø8.0*75	8.0	75	1.0	●	△	
RG ø8.0*100	8.0	100	1.0	●	△	
RG ø8.0*150	8.0	150	1.0	●	△	
RG ø10.0*70	10.0	70	1.0	●	△	
RG ø10.0*75	10.0	75	1.0	●	△	
RG ø10.0*100	10.0	100	1.0	●	△	
RG ø10.0*150	10.0	150	1.0	●	△	
RG ø12.0*75	12.0	75	1.0	●	△	
RG ø12.0*100	12.0	100	1.0	●	△	
RG ø12.0*150	12.0	150	1.0	●	△	
RG ø14.0*75	14.0	75	1.0	●	△	
RG ø14.0*100	14.0	100	1.0	●	△	
RG ø16.0*100	16.0	100	1.5	●	△	
RG ø16.0*125	16.0	125	1.5	●	△	
RG ø20.0*100	20.0	100	1.5	●	△	
RG ø20.0*150	20.0	150	1.5	●	△	
RG ø25.0*100	25.0	100	1.5	●	△	
RG ø25.0*140	25.0	140	1.5	●	△	
RG ø25.0*180	25.0	180	1.5	●	△	

● In stock △ Limited stock or make-to-order ◆ New product

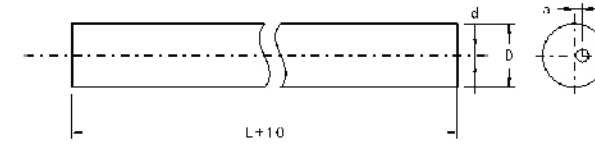
Ground Solid Rod (h6) - 330mm



Type	Dimension		Grade		
	øD(mm)	L(mm)	WR10	WR12A	WR10A
RG ø3.0*330	3.0	330	●	△	
RG ø4.0*330	4.0	330	●	△	
RG ø5.0*330	5.0	330	●	△	
RG ø6.0*330	6.0	330	●	△	
RG ø7.0*330	7.0	330	●	△	
RG ø8.0*330	8.0	330	●	△	
RG ø9.0*330	9.0	330	●	△	
RG ø10.0*330	10.0	330	●	△	
RG ø11.0*330	11.0	330	●	△	
RG ø12.0*330	12.0	330	●	△	
RG ø13.0*330	13.0	330	●	△	
RG ø14.0*330	14.0	330	●	△	
RG ø15.0*330	15.0	330	●	△	
RG ø16.0*330	16.0	330	●	△	
RG ø17.0*330	17.0	330	●	△	
RG ø18.0*330	18.0	330	●	△	
RG ø19.0*330	19.0	330	●	△	
RG ø20.0*330	20.0	330	●	△	
RG ø21.0*330	21.0	330	●	△	
RG ø22.0*330	22.0	330	●	△	
RG ø23.0*330	23.0	330	●	△	
RG ø24.0*330	24.0	330	●	△	
RG ø25.0*330	25.0	330	●	△	
RG ø26.0*330	26.0	330	●	△	
RG ø28.0*330	28.0	330	●	△	
RG ø30.0*330	30.0	330	●	△	
RG ø32.0*330	32.0	330	●	△	

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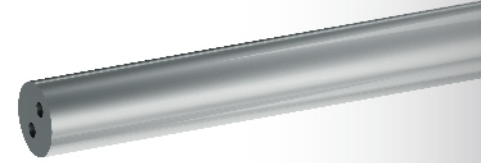
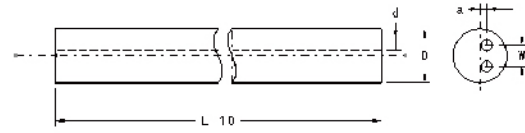
Unground Rod With One Straight Coolant Hole - 330mm



Type	Dimension					Grade		
	Diameter		Hole diameter		Offset distance	WR10	WR12A	WR10A
	øD(mm)	Tol.(mm)	ød(mm)	Tol.(mm)	a(mm)			
RS1S 0.8 ø3*330	3.0	+0.20~+0.60	0.80	±0.15	0.10	●	△	
RS1S 0.8 ø4*330	4.0	+0.20~+0.60	0.80	±0.15	0.10	●	△	
RS1S 0.8 ø5*330	5.0	+0.20~+0.60	0.80	±0.15	0.15	●	△	
RS1S 1.0 ø6*330	6.0	+0.30~+0.70	1.00	±0.15	0.15	●	△	
RS1S 1.0 ø7*330	7.0	+0.30~+0.70	1.00	±0.15	0.15	●	△	
RS1S 1.0 ø8*330	8.0	+0.30~+0.70	1.00	±0.15	0.15	●	△	
RS1S 1.4 ø9*330	9.0	+0.30~+0.70	1.40	±0.15	0.20	●	△	
RS1S 1.4 ø10*330	10.0	+0.30~+0.70	1.40	±0.15	0.20	●	△	
RS1S 1.75 ø12*330	12.0	+0.30~+0.70	1.75	±0.20	0.30	●	△	
RS1S 1.75 ø14*330	14.0	+0.30~+0.70	1.75	±0.20	0.37	●	△	
RS1S 2.0 ø15*330	15.0	+0.30~+0.70	2.00	±0.20	0.40	●	△	
RS1S 2.0 ø16*330	16.0	+0.30~+0.70	2.00	±0.20	0.45	●	△	
RS1S 2.0 ø18*330	18.0	+0.30~+0.70	2.00	±0.20	0.50	●	△	
RS1S 2.5 ø20*330	20.0	+0.30~+0.90	2.50	±0.20	0.50	●	△	
RS1S 2.5 ø22*330	22.0	+0.30~+0.90	2.50	±0.20	0.50	●	△	
RS1S 3.0 ø24*330	24.0	+0.30~+0.90	3.00	±0.25	0.50	●	△	
RS1S 3.0 ø25*330	25.0	+0.30~+0.90	3.00	±0.25	0.50	●	△	
RS1S 3.0 ø26*330	26.0	+0.30~+0.90	3.00	±0.25	0.50	●	△	
RS1S 3.0 ø28*330	28.0	+0.30~+0.90	3.00	±0.25	0.50	●	△	
RS1S 3.0 ø30*330	30.0	+0.30~+0.90	3.00	±0.25	0.50	●	△	

● In stock △ Limited stock or make-to-order ◆ New product

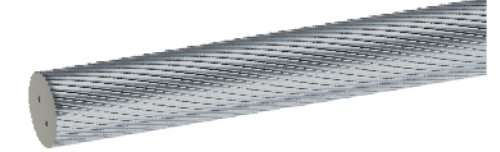
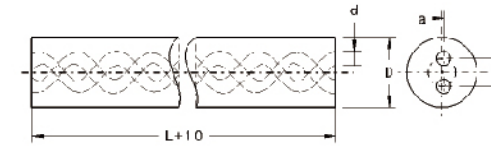
Unground Rod With Two Straight Coolant Holes - 330mm



Type	Dimension							Grade	
	Diameter		Hole diameter		Hole distance		Offset distance	WR10	WR12A
	øD(mm)	Tol.(mm)	ød(mm)	Tol.(mm)	W(mm)	Tol.(mm)	a(mm)		
RS2S 0.8/1.8 ø4*330	4.0	+0.20~+0.60	0.80	±0.15	1.80	±0.15	0.10	●	△
RS2S 0.8/2.0 ø5*330	5.0	+0.20~+0.60	0.80	±0.15	2.00	±0.15	0.13	●	△
RS2S 1.0/3.0 ø6*330	6.0	+0.30~+0.70	1.00	±0.15	3.00	±0.20	0.15	●	△
RS2S 1.0/4.0 ø8*330	8.0	+0.30~+0.70	1.00	±0.15	4.00	±0.30	0.15	●	△
RS2S 1.4/5.0 ø10*330	10.0	+0.30~+0.70	1.40	±0.15	5.00	±0.30	0.20	●	△
RS2S 1.75/6.0 ø12*330	12.0	+0.30~+0.70	1.75	±0.15	6.00	±0.25	0.30	●	△
RS2S 1.75/7.0 ø14*330	14.0	+0.30~+0.70	1.75	±0.15	7.00	±0.25	0.37	●	△
RS2S 2.0/7.0 ø15*330	15.0	+0.30~+0.70	2.00	±0.15	7.00	±0.25	0.40	●	△
RS2S 2.0/8.0 ø16*330	16.0	+0.30~+0.70	2.00	±0.15	8.00	±0.25	0.45	●	△
RS2S 2.0/9.0 ø18*330	18.0	+0.30~+0.70	2.00	±0.15	9.00	±0.30	0.50	●	△
RS2S 2.5/10.0 ø20*330	20.0	+0.30~+0.70	2.50	±0.20	10.00	±0.30	0.50	●	△
RS2S 2.5/11.0 ø22*330	22.0	+0.30~+0.90	2.50	±0.20	11.00	±0.30	0.50	●	△
RS2S 2.8/12.0 ø24*330	24.0	+0.30~+0.90	2.80	±0.25	12.00	±0.40	0.57	●	△
RS2S 2.8/12.0 ø25*330	25.0	+0.30~+0.90	2.80	±0.25	12.00	±0.40	0.57	●	△
RS2S 3.0/13.0 ø26*330	26.0	+0.30~+0.90	3.00	±0.25	13.00	±0.40	0.57	●	△
RS2S 3.0/14.0 ø28*330	28.0	+0.30~+0.90	3.00	±0.25	14.00	±0.40	0.57	●	△
RS2S 3.0/15.0 ø30*330	30.0	+0.30~+0.90	3.00	±0.25	15.00	±0.40	0.57	●	△
RS2S 3.0/16.0 ø32*330	32.0	+0.30~+0.90	3.00	±0.25	16.00	±0.40	0.57	●	△

● In stock △ Limited stock or make-to-order ◆ New product

Unground Rod With Two Helix(30°) Coolant Holes - 330mm



Type	Dimension								Grade	
	Diameter		Hole diameter		Hole distance		Offset distance	Pitch	WR10	WR12A
	øD(mm)	Tol.(mm)	ød(mm)	Tol.(mm)	W(mm)	Tol.(mm)	a(mm)	Lead(mm)		
RS2H 0.6/2.1 ø4.0*330	4.0	+0.50~+0.90	0.60	±0.15	2.1	+0.1/-0.3	0.10	21.77	●	△
RS2H 0.6/2.2 ø5.0*330	5.0	+0.50~+0.90	0.60	±0.15	2.2	+0.1/-0.3	0.13	27.21	●	△
RS2H 0.9/2.8 ø6.0*330	6.0	+0.50~+0.90	0.90	±0.15	2.8	+0.1/-0.3	0.15	32.65	●	△
RS2H 1.2/4.0 ø8.0*330	8.0	+0.60~+1.10	1.20	±0.15	4.0	+0.1/-0.3	0.15	43.53	●	△
RS2H 1.5/5.0 ø10.0*330	10.0	+0.60~+1.10	1.50	±0.20	5.0	+0.1/-0.4	0.20	54.41	●	△
RS2H 1.6/6.0 ø12.0*330	12.0	+0.60~+1.10	1.60	±0.20	6.0	+0.1/-0.4	0.30	65.30	●	△
RS2H 1.6/7.0 ø14.0*330	14.0	+0.60~+1.30	1.60	±0.20	7.0	+0.1/-0.5	0.37	76.18	●	△
RS2H 1.75/7.5 ø15.0*330	15.0	+0.60~+1.30	1.75	±0.20	7.5	+0.1/-0.5	0.40	81.62	●	△
RS2H 1.75/8.0 ø16.0*330	16.0	+0.60~+1.30	1.75	±0.20	8.0	+0.1/-0.6	0.40	87.06	●	△
RS2H 2.4/9.0 ø18.0*330	18.0	+0.60~+1.30	2.40	±0.30	9.0	+0.1/-0.6	0.50	97.95	●	△
RS2H 2.6/10.0 ø20.0*330	20.0	+0.60~+1.30	2.60	±0.30	10.0	+0.1/-0.6	0.50	108.83	●	△
RS2H 2.6/11.1 ø22.0*330	22.0	+0.60~+1.50	2.60	±0.30	11.1	+0.1/-0.6	0.50	119.71	●	△
RS2H 2.6/12.5 ø25.0*330	25.0	+0.60~+1.50	2.60	±0.30	12.5	+0.1/-0.6	0.50	136.03	●	△

● In stock △ Limited stock or make-to-order ◆ New product