友缘科技
Youyuan Science and Technology

Wire Drawing Dies

Tianchang Youyuan Metal Products Science and Technology Co., Ltd

Plant

Company profile

Tianchang Youyuan Metal Products Science and Technology Co., Ltd. was founded in 1990 (former Tianchang Diamond Drawing Die General Factory), company always uphold the "people-oriented, quality win, science and technology first" concept since established, through continuous product innovation to create more value for customers. Now Youyuan Metaltech focus on user demand and experience, providing flexible solutions to create long-term cooperation with home and overseas customers.

Youyuan Metaltech has one own plant area of 7500 square meters, more than 100 employees, including 4 senior engineers, 6 engineers and 20 technicians. In recent years, company has upgraded and added a number of advanced production lines and precision inspection equipment, providing customers more rich and complete drawing solution and passed ISO9001 quality management system certification. We have gained the trust of customers from China, the United States, Germany, Poland, South Korea, India, Vietnam and other countries.

Products include: nano diamond coated wire drawing die, PCD wire drawing die, single crystal diamond wire drawing die, tungsten carbide wire drawing die, shaped wire drawing die, other customized dies and equipment for producing and repairing wire drawing dies: ultrasonic cleaning machine, high speed lapping machine and inspection instrument, etc.

Youyuan Metaltech sincerely welcomes customers from home, abroad and colleagues in the same industry to cooperate and develop, to create future together.

管理体系认证证书

兹证明

天长市友缘金属制品科技有限公司

统一社会信用代码：91341181567537714G

地址：安徽省滁州市天长市杨村工业园区万和北路西侧

质量管理体系符合

GB/T 19001-2016 / ISO 9001:2015

本证书覆盖范围

拉丝模具的生产

初次认证日期：2022年03月21日　　本次发证日期：2022年03月21日

有　效　期：2022年03月21日至2025年03月20日

证　书　号：U919122Q30314R0S

北京大陆航星质量认证中心股份有限公司

地址：北京市海淀区玉泉路甲12号七层

Certificate of
Management System Certification

This is to certify the quality management system of

TIANCHANG YOUYUAN METAL PRODUCTS SCIENCE AND TECHNOLOGY CO., LTD

Unified Social Credit Code:91341181567537714G

ADDRESS THE WEST SIDE OF WANHE NORTH ROAD, YANGCUN INDUSTRIAL PARK, TIANCHANG CITY, CHUZHOU CITY, ANHUI PROVINCE

Is in conformity with

GB/T 19001-2016 / ISO 9001:2015

This certificate covers the following area

PRODUCTION OF WIRE DRAWING DIES

Initial Certification Date: MAR.21,2022　　Issue Date: From MAR.21,2022

Validity Period: From MAR.21,2022 To MAR.20,2025

Certificate No.: U919122Q30314R0S

Beijing Daluhangxing Quality Certification Center Co., Ltd.

Address: No. Jia 12, Yuquan road, Haidian district, Beijing, P.R. China

Nano Diamond Coated Wire Drawing Die

Nano diamond coated wire drawing die is a new type of wire drawing die, which is made of nanoscale diamond film on working surface(tungsten carbide base) of the die by chemical vapor deposition (CVD), through casing, lapping, polishing and subsequent procedures to finish the die.

Application

Suitable for drawing wire and cable, electromagnetic wire, electrical alloy, welding wire, steel cord, (high, medium and low) carbon steel wire, tungsten and molybdenum or other metal wires.

Characteristics

1. High wear resistance. Normally, lifetime is 20~30 times of tungsten carbide wire die.
2. High efficiency. Compared with polycrystalline diamond, CVD diamond coating has no metal binder inside and can suffer temperature of 800-950℃. It support higher speed wire drawing and has good qualified rate of wire drawing, greatly improved efficiency.
3. Excellent wire finish. Nanoscale diamond coating makes the wire surface have excellent finish than most of wire dies.
4. Low cost. The long lifetime reduces the frequency of die changing and increases the effective working time in production, reducing labor intensity and eliminating the need for additional cooling and lubrication systems.

Nano Diamond Coated Wire Drawing Die

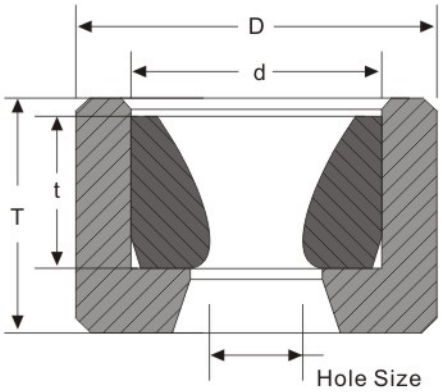
Standard Product Dimensions

Unit: mm

Hole Size				Nib Size (dxt)	Case Size (DxT)
Min.	Max.	Tolerance	Ovality		
0.500	1.600	± 0.003	≤0.002	12×8	28×15
1.201	2.050	±0.005	≤0.005	13×10	30×15
2.051	3.180	±0.010	≤0.005	15×13	40×25
3.181	6.000	±0.020	≤0.005	19×17	40×25
5.800	8.600	±0.020	≤0.005	24×16	50×30
8.001	10.000	±0.020	≤0.005	25×18	50×30
10.001	12.000	±0.030	≤0.007	29×24	60×35
12.001	17.500	±0.030	≤0.007	38×24	80×42
15.800	19.000	±0.030	≤0.010	40×22	80×42
19.600	23.000	±0.030	≤0.010	45×24	80×42
22.500	25.000	±0.030	≤0.020	48×25	100×52
25.001	35.000	±0.040	≤0.020	50×28	100×52

Customized service is available, please contact us.

Die Profile



Nano Diamond Coated Wire Drawing Die

Nano Diamond Coated Wire Drawing Die

PCD Wire Drawing Die

PCD wire drawing die is made of polycrystalline diamond material as drawing working area, through casing, drilling, lapping, polishing and other procedures to finish the die.

Polycrystalline diamond(PCD) is sintered by micron-sized diamond particles and binder (Cobalt) under HTHP. It has the advantages of high hardness, excellent wear resistance, strong impact resistance and uniformity.

PCD Wire Drawing Die

PCD wire drawing die has been divided into Cobalt Type and Non-Cobalt (Acid treated) Type.

PCD wire drawing die with Cobalt.
Suitable for drawing copper, aluminum, copper-clad aluminum, magnesium alloy and other non-ferrous metal soft wires.

Characteristics
1. Good wear resistance. Life time is more than 10 times of standard tungsten carbide die.
2. High efficiency. It can suffer the temperature of 600℃, support high-speed wire drawing to improve efficiency.
3. Good wire finish. Different grain size can be provided to meet most of surface finish requirement.
4. Low cost. Longer life reduces the frequency of die changing, labor intensity and increases machine utilization.

PCD wire drawing die with Non-Cobalt.
Suitable for drawing stainless steel, (high carbon) steel, nickel, tungsten carbide, molybdenum and other alloy hard wires.

Characteristics
1. Good wear resistance. Life time is more than 10 times of standard tungsten carbide die.
2. High efficiency. It can suffer the temperature of 800℃, support high-speed wire drawing to improve efficiency.
3. Good wire finish. Different grain size can be provided to meet most surface finish requirement.
4. Low cost. Longer life greatly reduces the frequency of die change, labor intensity and increase machine utilization.

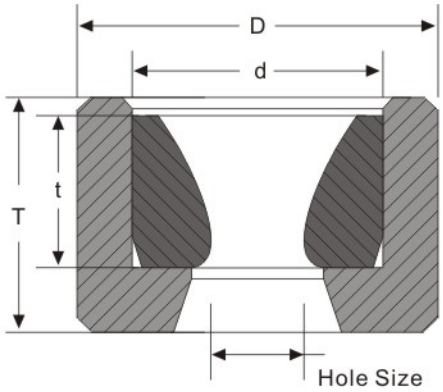
PCD Die	Grain Size							
Type	Mix	1 μm	3 μm	5 μm	10μm	25μm	30μm	40μm
Cobalt	●	●	●	●	●	●	●	●
Non–Cobalt	●	●	●	●	●	●	●	●

PCD Wire Drawing Die

Standard Product Dimensions					
					Unit: mm
Hole Size				Die Blank (dxt)	Case Size (DxT)
Min.	Max.	Tolerance	Ovality		
0.020	0.300	± 0.001	≤0.001	D6/2508	25 x 10
0.100	0.400	±0.001	≤0.001	D6/2510	25 x 10
0.401	0.800	±0.001	≤0.001	D12/3215	25×12
0.401	1.000	±0.001	≤0.002	D12/4015 TC ring	30×15
0.801	1.500	±0.001	≤0.002	D15/5225	30×15
0.801	1.800	±0.001	≤0.002	D15/4023 TC ring	30×15
1.501	2.000	±0.002	≤0.002	D18/5235	30×15
1.501	2.300	±0.002	≤0.002	D18/4029 TC ring	40×25
2.001	3.000	±0.002	≤0.002	D21/8040	40×25
2.001	3.500	±0.002	≤0.002	D21/7040 TC ring	40×25
3.001	4.000	±0.003	≤0.002	D24/9853	40×25
3.001	4.600	±0.003	≤0.002	D24/7053 TC ring	40×25
4.601	5.800	±0.003	≤0.002	D27/13086 TC ring	45×25
5.801	7.600	±0.010	≤0.005	D30/130116 TC ring	50×30
7.601	9.000	±0.010	≤0.005	D31/150120 TC ring	50×30
9.001	11.000	±0.010	≤0.005	D33/150150 TC ring	50×30
11.001	12.800	±0.010	≤0.005	D33/180170 TC ring	50×35
12.801	14.000	±0.020	≤0.005	D36/250180 TC ring	50×35

Customized service is available, please contact us.

Die Profile



PCD Wire Drawing Die

Single Crystal Diamond Wire Drawing Die

Single crystal diamond wire drawing die is made of natural or synthetic single crystal diamond as wire drawing working area, through casing, drilling, lapping, polishing and subsequent procedures to finish the die.

Application

Suitable for drawing fine and extra fine wire, or all kinds of metal wires with high requirements on roughness and roundness.

Characteristics

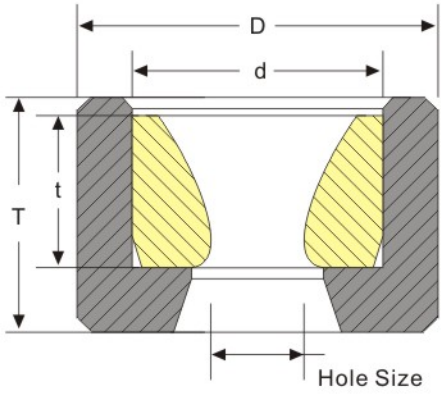
1. Extremely high wear resistance. Diamond is the hardest material as known, it has extremely high wear resistance.
2. Excellent wire finish. Either natural or synthetic diamond can make the wire finish to achieve the excellent quality.
3. Excellent wire uniformity and roundness.

Single Crystal Diamond Wire Drawing Die

Standard Product Dimensions					
					Unit: mm
Hole Size				Die Blank (dxt)	Case Size (DxT)
Min.	Max.	Tolerance	Ovality		
0.020	0.100	±0.001	≤0.001	NDM/06	25×10
0.101	0.200	±0.001	≤0.001	NDM/07	25×10
0.201	0.300	±0.001	≤0.001	NDM/08	25×10
0.301	0.400	±0.001	≤0.001	NDM/09	25×10
0.401	0.500	±0.001	≤0.001	NDM/10	25×10
0.501	0.600	±0.001	≤0.001	NDM/11	25×12
0.601	0.700	±0.001	≤0.001	NDM/12	25×12
0.701	0.800	±0.001	≤0.002	NDM/13	25×12
0.801	0.900	±0.002	≤0.002	NDM/14	30×15
0.901	1.000	±0.002	≤0.002	NDM/15	30×15
1.001	1.100	±0.002	≤0.002	NDM/16	30×15
1.101	1.200	±0.002	≤0.002	NDM/17	30×15
1.201	1.300	±0.002	≤0.002	NDM/18	30×15
1.301	1.400	±0.002	≤0.002	NDM/19	30×15
1.401	1.500	±0.002	≤0.002	NDM/20	30×15

Customized service is available, please contact us.

Die Profile



Tungsten Carbide Wire Drawing Die

Tungsten carbide wire drawing die is made of tungsten carbide as drawing working area, through hole processing, lapping, polishing, casing and subsequent procedures to finish the die.

Application

Suitable for drawing of ferrous metal and non-ferrous metal wires.

Characteristics

1. High quality. After strict inspection of raw materials, high precision machine processing and process, final inspection control to ensure the reliability and stability.
2. Excellent cost performance. Tungsten carbide has high density, high hardness, high strength, low price characteristics and the die can be recut. Excellent cost-effective product.

Tungsten Carbide Wire Drawing Die

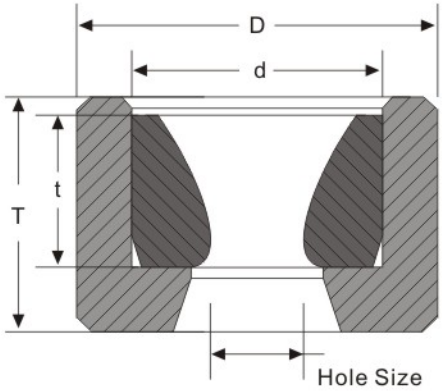
Standard Product Dimensions

Unit: mm

Hole Size				Nib Size (dxt)	Case Size (DxT)
Min.	Max.	Tolerance	Ovality		
0.15	0.60	±0.003	≤0.001	9×6	25 x 12
0.35	0.25	±0.003	≤0.001	12×8	30×15
0.65	3.60	±0.003	≤0.002	13×10	30×15
0.70	3.60	±0.003	≤0.003	15×13	30×15
0.75	4.00	±0.005	≤0.005	16×14	40×25
0.80	6.00	±0.005	≤0.005	20×17	40×28
2.60	6.00	±0.005	≤0.005	22×18	45×30
5.50	8.00	±0.010	≤0.005	25×18	50×30
5.70	9.00	±0.010	≤0.010	28×20	60×35
9.00	11.00	±0.010	≤0.010	30×21	60×35
11.00	15.00	±0.020	≤0.010	35×22	70×35
15.00	18.00	±0.020	≤0.010	40×25	80×45
19.70	22.80	±0.020	≤0.020	45×24	90×45
20.00	26.00	±0.020	≤0.020	50×28	100×50
25.01	30.00	±0.020	≤0.020	55×30	110×53
27.80	35.00	±0.020	≤0.020	60×30	120×60

Customized service is available, please contact us.

Die Profile



Shaped PCD Wire Drawing Die

Shaped PCD wire drawing die is made of solid polycrystalline diamond(Self-Support and TC Ring-Support) as drawing working area, through casing, shaped hole processing, lapping, polishing casing and other procedures to finish the die.

Application

Suitable for drawing wire and cable, hardware, instrument and electric traction line or other non-ferrous metal shaped wires.

Characteristics

1. Variety of hole shape processing, includes: triangle, square, rectangle, hexagonal, oval, trapezoid, arch, tile and other irregular orifices.
2. High precision. We use Swiss GF AgieCharmilles slow-feeding wire-cut machine, tolerance can reach ±0.002mm.

Product Dimensions

Unit: mm

Excircle Diameter			Die Blank (dxt)	Case Size (DxT)
Min.	Max.	Tolerance		
0.10	0.80	±0.003	4×2	28×13
0.81	1.50	±0.003	5.2×2.5	28×13
1.51	1.80	±0.003	6×4	30×14
1.81	2.00	±0.003	8×4	32×16
2.01	2.25	±0.003	9×5	40×26
2.26	2.50	±0.003	10×6	40×26
2.51	2.75	±0.003	12×6	40×26
2.76	3.50	±0.003	13×8	40×27
3.51	4.50	±0.003	14×10	40×28
4.51	5.00	±0.003	16×10	40×28
5.01	6.00	±0.003	18×10	45×28
6.01	8.00	±0.003	20×12	45×30

Please contact us for more dimensions.

Shaped Tungsten Carbide Wire Drawing Die

Shaped tungsten carbide wire drawing die is made of tungsten carbide as drawing working area, through shaped hole processing, lapping, polishing, casing and other procedures to finish the die.

Application

Suitable for drawing wire and cable, hardware, instrument and electric traction line or other ferrous and non-ferrous metal shaped wires.

Characteristics

1. Variety of hole shape processing, includes: triangle, square, rectangle, hexagonal, oval, trapezoid, arch, tile and other irregular orifices.
2. High precision. We use Swiss GF AgieCharmilles slowfeeding wirecut machine, tolerance can reach ±0.002mm.

Square Hole-Product Dimensions

Unit: mm

Hole Size			Nib Size (dxt)	Case Size (DxT)
Min.	Max.	Tolerance		
0.15	1.50	±0.005	13×10	40×26
0.60	2.40	±0.005	16×14	40×27
2.41	4.50	±0.005	22×18	45×30
4.51	7.00	±0.005	30×21	60×35
4.01	10.00	±0.005	35×25	70×40
10.01	12.00	±0.005	40×25	80×43
12.01	15.00	±0.005	45×25	90×43
15.01	18.00	±0.005	50×28	100×52
18.01	20.00	±0.005	55×30	110×55
20.01	24.00	±0.005	60×35	120×60
24.01	28.00	±0.005	65×35	130×62
28.01	32.00	±0.005	70×35	140×65

Please contact us for more dimensions.

Shaped Tungsten Carbide Wire Drawing Die

Rectangle Hole-Product Dimensions

Unit: mm

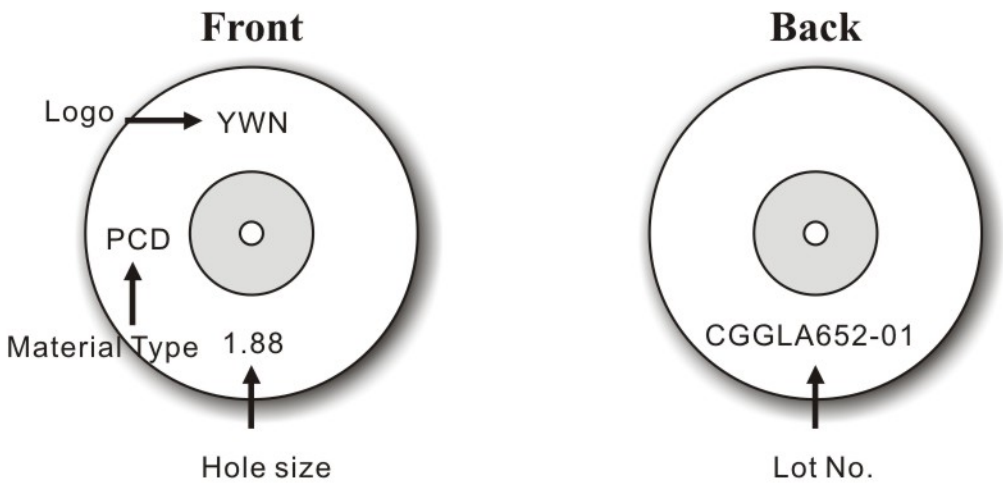
Code	Hole Size	Tolerance	Nib Size (dxt)	Case Size (DxT)
YYHJ-3021	6.7×4.7	±0.005	30×21	60×35
YYHJ-3525	7.7×5.7 7.7×6.7 8.7×2.7 9.7×3.7 9.7×5.7 9.7×6.7 9.7×7.7	±0.005	35×25	70×40
YYHJ-4525	11.7×7.7 11.7×9.7	±0.005	45×25	90×45
YYHJ-5028	13.7×6.7 13.7×8.7 15.6×7.7 15.6×9.7 15.6×11.7 15.6×12.7 17.6×10.7 17.6×15.7	±0.005	50×28	100×53
YYHJ-6030	19.6×7.7 19.6×9.7 19.6×11.7 19.6×14.7 21.6×9.2 21.6×11.7 21.6×14.2 23.6×11.7 23.6×14.7	±0.005	60×30	100×53

Comparison Chart

Item	TC Wire Die	PCD Wire Die	NSCD Wire Die	NDCD Wire Die
Wear Resistance	1x	10x above	/	20x-30x
Wire Surface	Normal	Good	Best	Excellent
Min. Hole Size	0.10mm	0.02mm	0.02mm	0.50mm
Max. Hole Size	58.0mm	14.0mm	1.50mm	35.0mm
Grain Size	/	1-40μm	/	0.05μm
Recut	Yes	Yes	Yes	No
Price	Low	High	Expensive	Medium

1. Wear resistance is a comparison of all type dies, it is only for indication. It might be different which depends on wire type, wire condition, lubricant type and drawing conditions.
2. Above mentioned price is also a comparison of all type dies, it is only for indication. It might be different which depends on toleance, hole geometry, case material, case size and other requirements.

Laser Mark Instruction



Type Mark

NDCD.....Nano Diamond Coated Die
PCD.....PCD Die
PCD-T..... PCD Acid-treated Die
NSCD.....Natural Single Crystal Diamond Die
SSCD.....Synthetic Single Crystal Diamond Die
TC.....Tungsten Carbide Die
SD-PCD .....Shaped PCD Die
SD-TC .....Shaped Tungsten Carbide Die

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