

2 指张角手爪 / 2-Finger Angular Gripper

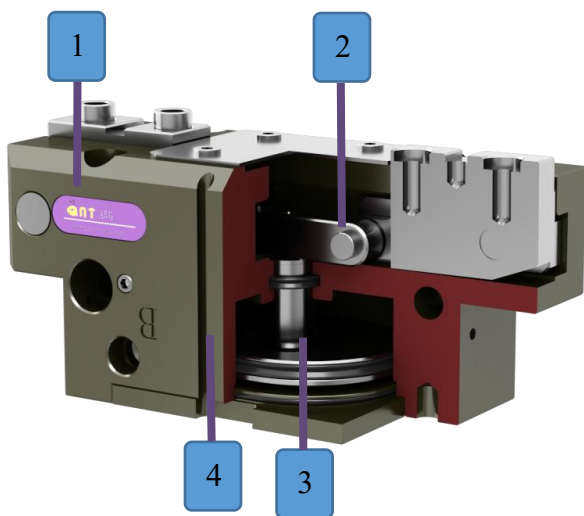
原理

- 压缩空气推动椭圆形活塞上下运动
- 连杆式原理将驱动力转化为夹持力
- 滑块同步运动

Principle

- The oval piston is moved up or down by means of compressed air
- High gripping force as a result of optimal direction change of driving force into gripping force
- Synchronous gripping movement of both base jaws

剖视图 / Sectional diagram



- 1 本体 Housing**
涂层处理的高强度铝合金
High-strength aluminum alloy, anodized
- 2 传动方式 Transmission Model**
连杆原理
Rod element design principle
- 3 驱动部分 Energy supply**
大型椭圆形活塞，提供更大的夹持力
Large oval piston: can have greater force
- 4 传感系统 Sensor system**
磁性传感器
Of gripper jaw via magnetic sensor

传感系统 Sensor system

接近传感器 / Proximity switch (选购/Order)



适用型号(NO.) **AWG-160/180/260/300/380**

NPN WPS-8GM35N

PNP WPS-8GM35P

磁性传感器 / Magnetic Sensor (选购/Order)



型号(NO.)

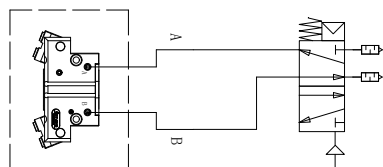
NPN WMS-M9N

PNP WMS-M9P

● 磁性传感器不适用于连接具有磁性的连接板或环境为磁场环境和环境温度大于 80℃ 下使用

● The magnetic sensors are not suitable for connecting the magnetic plate or the environment is magnetic field and the temperature is greater than 80℃.

手爪气路连接原理图



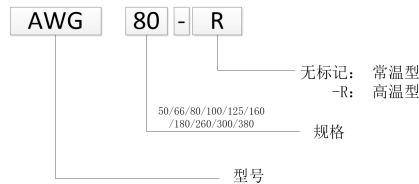
手爪适配气管及电磁阀有效截面积建议值

型号	AWG			
	50/66/80	100/125	180/260	300~380
气管直径 (mm)	≥4	≥6	≥8	≥10
电磁阀有效截面积	≥17.0	≥17.0	≥28.0	≥48.0

AWG



型号表示方法



技术资料/Technical data

Description		AWG 50	AWG 66	AWG 80	AWG 100	AWG 125
手指单边张开角度 Stroke per finger	°	20				
开闭夹持力 Closing moment	N	$\frac{0.52 \times P}{L+11} \times 1000$	$\frac{1.2 \times P}{L+13} \times 1000$	$\frac{2.7 \times P}{L+17.5} \times 1000$	$\frac{5 \times P}{L+19.5} \times 1000$	$\frac{9.3 \times P}{L+21} \times 1000$
使用压力范围 Max./Min. operating pressure	bar	3/8				
产品重量 Weight	Kg	0.13	0.25	0.5	0.8	1.38
空气消耗量/周期 Air consumption per double stroke	cm ³	4.1	10	25.2	40	1850
开/闭时间 Closing/opening time	s	0.02/0.04	0.05/0.1	0.2/0.3	0.2/0.3	0.3/0.4
重复精度 Repeat accuracy	°	0.1	0.1	0.1	0.1	0.1
最大手指长度 Max. permitted finger length	mm	50	60	80	100	125
单个手指最大重量 Max. permitted weight per finger	Kg	0.1	0.2	0.5	1	1.5
适应最小/最大环境温度 Min./Max. ambient temperature	°C	标准型 : 5/80 高温型 (-R) : 5/200				
IP 等级 IP class		40				

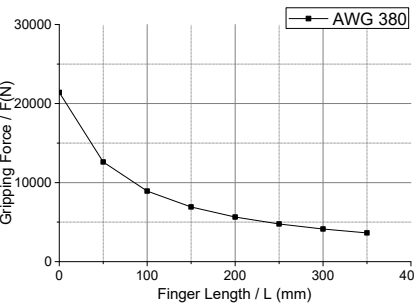
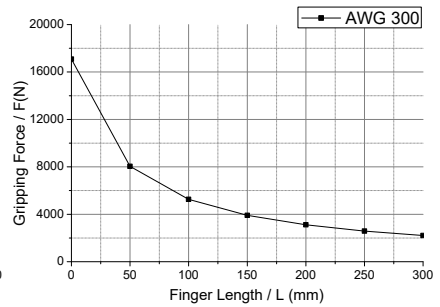
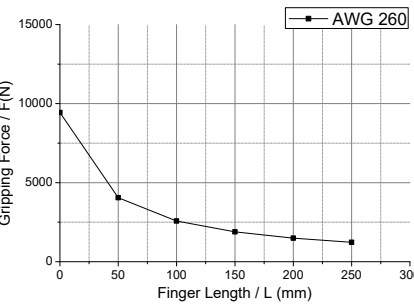
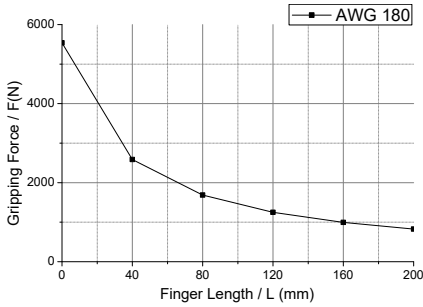
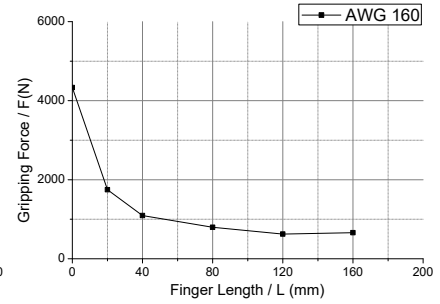
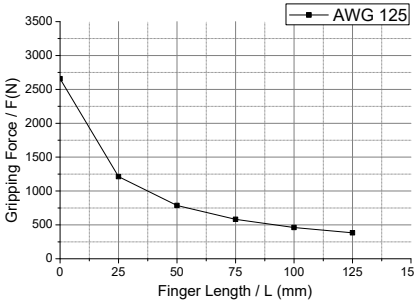
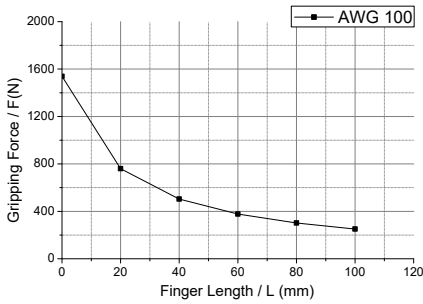
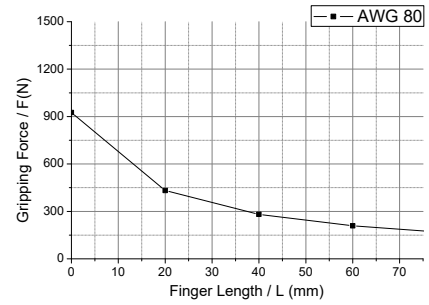
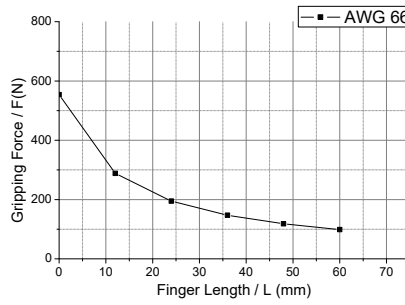
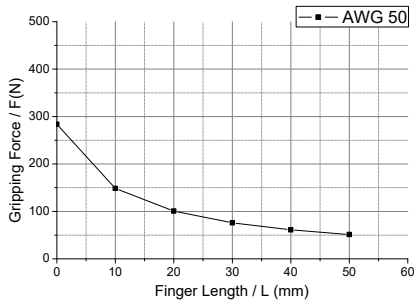
Description		AWG 160	AWG 180	AWG 260	AWG 300	AWG 380
手指单边张开角度 Stroke per finger	°	20				
开闭夹持力 Closing moment	N	$\frac{19.5 \times P}{L+27} \times 1000$	$\frac{32.3 \times P}{L+35} \times 1000$	$\frac{59 \times P}{L+37.5} \times 1000$	$\frac{126.7 \times P}{L+44.5} \times 1000$	$\frac{255.2 \times P}{L+71.5} \times 1000$
使用压力范围 Max./Min. operating pressure	bar	3/8				
产品重量 Weight	Kg	2.9	5.5	9.5	19	38
空气消耗量/周期 Air consumption per double stroke	cm ³	268	360	603	1047	1850
开/闭时间 Closing/opening time	s	0.3/0.4	0.4/0.5	0.5/0.6	0.5/0.6	1.0/1.0
重复精度 Repeat accuracy	°	0.2	0.2	0.4	0.5	0.5
最大手指长度 Max. permitted finger length	mm	160	200	250	300	350
单个手指最大重量 Max. permitted weight per finger	Kg	2	3	5	11	15
适应最小/最大环境温度 Min./Max. ambient temperature	°C	标准型 : 5/80 高温型 (-R) : 5/200				
IP 等级 IP class		40				

◇P: 空气压力[bar], 手指夹持工件作用点到手指安装面距离 L [mm] *重复精度: 连续动作 100 次后检测值

◇P: Pressure [bar], L: The distance from the point of the Finger gripping the workpiece to the finger mounting surface [mm] *Repeat accuracy is defined as the spread of the limit position after 100 consecutive strokes

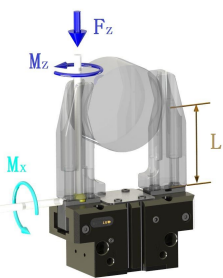
抓取力图表/Gripping force chart

◆所有参数为气压 6bar 下测试/All data measured at 6bar



手爪最大负载

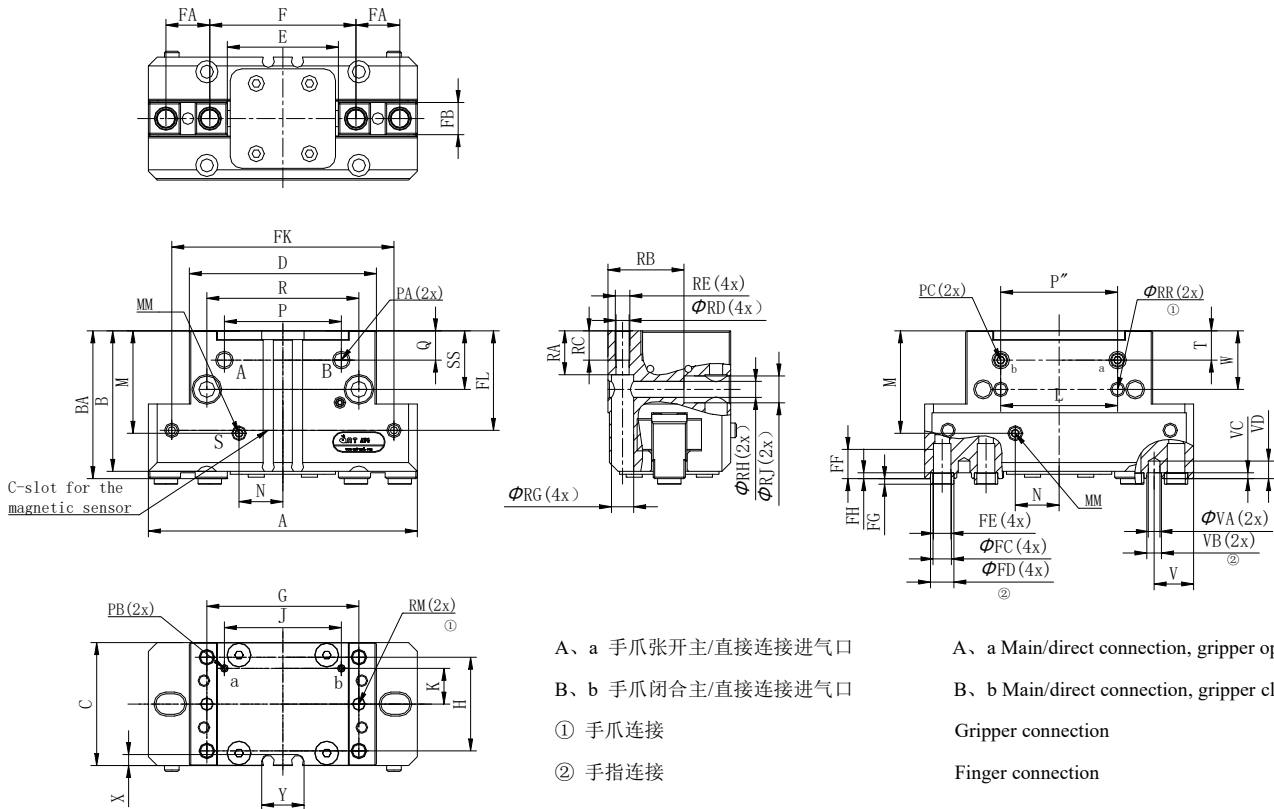
Finger load information



夹紧静载荷	AWG 50	AWG 66	AWG 80	AWG 100	AWG -125	AWG 160	AWG 180	AWG 260	AWG 300	AWG 380
Mx max.(Nm)	10	13.5	18	36	45	110	150	186	225	360
Mz max.(Nm)	3.5	5	12	28	36	100	135	160	180	240
Fz max.(N)	320	350	620	850	1350	1760	2210	3050	6050	8700

尺寸图/Dimensions

AWG 80~160

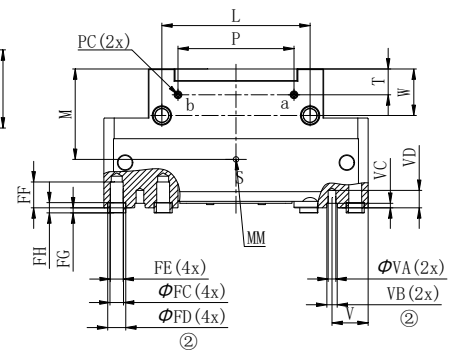
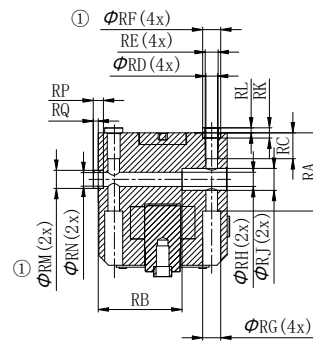
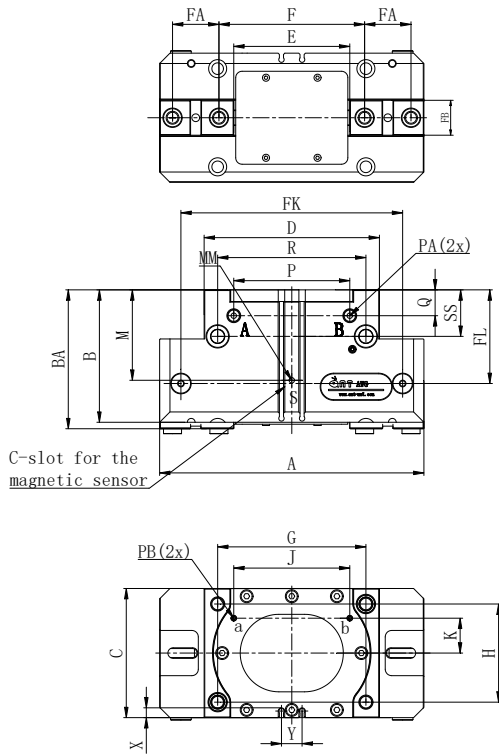


型号	A	B	BA	C	D	E	F	FA	FB	FC	FD	FE	FF	FG	FH	FK	FL	G	H	J	K	L	M	MM	N	P	P''
AWG 50	55	31.5	34.5	27.8	42	19	25	12±0.02	6.6	3.4	5h7	M3	7	1.9	2	45	23.5	35±0.02	20	25	8	25±0.02	22.5	M3 深 4	10	25	25
AWG 66	65	39	41.5	36	52	25	32	12±0.02	9	4.5	6h7	M4	8	1.9	2	56	28.5	42±0.02	27	28	11	20±0.02	28	M5 深 6	12	28	28
AWG 80	92	48	51.5	42	64	38	50	15±0.02	11	6.3	8h7	M6	12	1.9	2	76	34	52±0.02	32	40	12.2	40±0.02	35	M5 深 6	—	40	40
AWG 100	115	57	60.5	50	80	47	59	18±0.02	13	6.6	10h7	M6	12	2.9	3	100	41	66±0.02	38	48	16	50±0.02	38	M5 深 6	—	48	48
AWG 125	142	63.5	68	60	100	60	72	25±0.02	17	6.6	10h7	M6	12	2.9	3	118	47	82±0.02	45	60	18	60±0.02	45	M5 深 6	—	62	65
AWG 160	180	82	86	72	125	71	88	36±0.02	18.5	8.6	12h7	M8	16	2.9	3	152	59	100±0.02	56	76	22	76±0.02	60	M5 深 6	—	78	78

型号	PA	PB	PC	Q	R	RA	RB	RC	RD	RE	RG	RH	RJ	RM	RR	SS	T	W	V	VA	VB	VC	VD	X	Y
AWG 50	M5 深 6	M2.5	M5 深 5	8	35	28	19.3	8	3.3	M4	6.5	3.4	6	3H7 深 5	3H7 深 3	15	8	15	9	4H7	5H7	2	7	3.9	9.5
AWG 66	M5 深 6	M3	M5 深 5	8	42	14	23	10	4.2	M5	8	4.2	8	4H7 深 4	4H7 深 4	18	8	18	10.5	3H7	4H7	2	6	3.95	10.5
AWG 80	M5 深 6	M3	M5 深 5	10	52	15	26	10	4.2	M5	7.6	5.2	9.2	4H7 深 6	4H7 深 4	20	10	20	13.5	4H7	5H7	2	6	3.75	14.5
AWG 100	G1/8 深 7	M5	M5 深 5	15.5	66	35.5	22	12	5.2	M6	10	5.2	10	5H7 深 8	5H7 深 5	25	12	25	19	4H7	5H7	2	8	3.75	16.5
AWG 125	G1/8 深 7	M5	M5 深 5	13	82	23.5	36	16	6.6	M8	11	8.6	13.5	6H7 深 8	6H7 深 6	30	13	30	22.5	5H7	6H7	2	7	3.95	17
AWG 160	G1/8 深 7	M5	M5 深 5	15.5	100	45	52	20	6.6	M8	11	8.6	14	6H7 深 8	6H7 深 6	33	15.5	33	29	6H7	8H7	3.5	11.5	3.9	17

尺寸图/Dimensions

AWG 180~380



A、a 手爪张开主/直接连接进气口
B、b 手爪闭合主/直接连接进气口
① 手爪连接
② 手指连接

A、a Main/direct connection, gripper opening
B、b Main/direct connection, gripper closing
Gripper connection
Finger connection

型号	A	B	BA	C	D	E	F	FA	FB	FC	FD	FE	FF	FG	FH	FK	FL	G	H	J	K	L	M	MM	P
AWG 180	205	102.5	107.5	100	136	90	113	36±0.02	27	10.5	14h7	M10	20	3.9	4	172	72.5	115±0.02	76±0.02	90	27	115±0.02	70	M5 深 6	90
AWG 260	240	122	127.5	115	186	104	124	44±0.02	30.5	12.5	16h7	M12	24	3.9	4	204	88.5	160±0.02	80±0.02	96	48	160±0.02	80	M5 深 6	96
AWG 300	330	149.5	157	152	220	146	175	60±0.02	39	12.5	18h7	M12	24	5.8	6	280	111.5	180±0.02	100±0.02	150	24	180±0.02	98	M5 深 6	150
AWG 380	380	192	200	180	285	130	184	64±0.02	57	21	28h7	M20	40	9.8	10	315	127	240±0.02	130±0.02	140	70	240±0.02	120	M5 深 6	140

型号	PA	PB	PC	Q	R	RA	RB	RC	RD	RE	RF	RG	RH	RJ	RK	RL	RM	RN	RP	RQ
AWG 180	G1/8 深 7	M5	M5 深 5	20	115	60.5	65	20	8.6	M10	14h7	14	11	17	7.9	3.9	14h7	10.5	7.9	3.9
AWG 260	G1/4 深 12	M5	M5 深 5	25	160	62	70	24	10.2	M12	16h7	18	13.5	20	7.9	3.9	16h7	12.5	7.9	3.9
AWG 300	G1/4 深 12	M5	M5 深 5	30	180	56	49	24	10.2	M12	18h7	18	13.5	20	11.8	5.8	18h7	12.5	11.8	5.8
AWG 380	G1/4 深 12	M5	M5 深 5	30	240	87	80	40	17.5	M20	28h7	26	21	32	19.8	9.8	28h7	21	19.8	9.8

型号	SS	T	W	V	VA	VB	VC	VD	X	Y
AWG 180	36	20	36	28	6H7	8H7	3.5	14	7.6	16
AWG 260	39	20	39	36	6H7	8H7	3.5	14	7.8	29
AWG 300	66	30	66	47.5	10H7	12H7	4	14	8.1	20
AWG 380	60	30	60	66	16H7	20H7	5	21	17.6	45