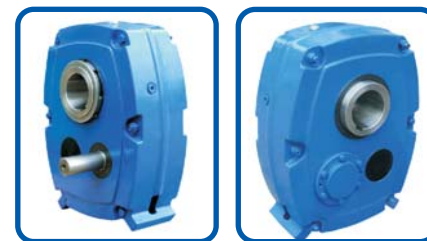




SMR 系列轴装式减速机

SMR SERIES SHAFT MOUNTED GEAR REDUCER



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SMR 轴装式减速机 SMR Series Shaft Mounted Gearbox

一、SMR 轴装式减速机特性 SMR shaft mounted gearbox specification

1. 高强度合金钢输入齿轴 Strong Alloy Steel Shafts

高强度合金钢，淬硬处理，轴承档、油封档、输入轴外圆精密磨削，可以承受最大的径向载荷及扭矩。较长输入键槽设计，可以承受较大的冲击，完全符合 ISO 标准。

Strong Alloy Steel, Hardened, Ground on Journals, Gear Seatings and Extensions, for Maximum Load and Maximum Torsional Loads. Generous Size Shaft Keys for Shock Loading and Conform to ISO Standards.

2. 输出空心轴 Output hollow shaft

标准及可选公制空心轴孔径适合于ISO 标准轴径尺寸。

Standard or alternative hubs with metric bores are available to suit international standard shaft diameters.

3. 高精度齿轮 Precision High Quality Gearing

高强度合金钢材料，渗碳淬火，磨齿工艺（部分中间齿轴剃齿工艺），渐开线齿形修形，每级齿轮传动效率高达98%，传动平稳，噪音低。

Strong Alloy Materials for High Load Capacity, carburizing and quenching, Ground Profile(some intermediate pinions are shaved) Crown tooth Profile, 98% Efficiency for Per Stage, Smooth Quiet Operation with Several Teeth in Mesh.

4. 高强度箱体 Maximum Capacity Housing Design

高强度铸铁精密铸造，优良的减振缓冲冲击能力，轴承孔经精密加工，定位销准确定位，保证齿轮的平稳啮合。

Close Grain Cast Iron Construction, Excellent Vibration Dampening & Shock Resistance Features, Precision Bored and Dowelled to Ensure Accurate In-Line Assembly.

5. 附加箱体支撑角(不包括H、J) Additional Case Lugs Except H and J Gear Case

支撑扭力臂螺栓，防止螺栓过紧而拉坏箱体。控制标准扭力臂的安装位置在推荐的范围内。

Eliminates the Need for Critical Tightening of Torque Arm Bolts. Controls Position of Standard Torque Arm Mounting within Recommended.

6. 轴承及油封 Bearings and Oilseals

所有轴承均符合ISO 标准，油封均为骨架式双唇油封。

Bearings are Adequately Proportioned and Conform to ISO Dimension Plan, Readily Available World-Wide. Oilseals are Double Garter Spring Type, Ensuring Effective Oil Sealing.

7. 橡胶油封盖 Rubberised End Caps

使用橡胶油封盖来密封中间齿轴孔，ISO 标准孔径尺寸。

Self Sealing Intermediate Cover Plates, to Standard ISO Housing Dimensions.

8. 逆止器 Backstops

可选附件，用于减速机不能反转的使用条件下（仅用于13:1 及20:1 减速机，5:1 减速机不推荐使用）。

Alternative Parts, Anti-run Back Device, Are Available on both 13:1 and 20:1 Ratio Units and do not recommend for 5:1 Units.

9. 扭力臂附件 Torque Arm Assembly

用扭力臂来安装调整减速机的空间位置及皮带的松紧。

To adjust the install space location of reducer and the elasticity of belt.

二、减速机选型 Gearbox Selection

澳柯曼 SMR 系列轴装式减速机是在先进的传动设备基础上改进的系列化减速机。轴装式齿轮减速机提供了一个非常方便的减速方法，可以直接固定在设备的驱动轴上，不需要把减速机固定在地基上或其他基础上。这样可以少用一个或两个弹性联轴器以及内部的皮带松紧装置，用扭力臂上的螺旋扣可以方便快捷的调整皮带的松紧。

AOKMAN SMR Series Shaft Mounted Reducer are metric in design throughout and have power ratings to AGMA standard. Shaft Mount Reducers provide a very convenient method of reducing speed, since it is mounted directly on the driven shaft instead of requiring foundations of its own. It eliminates the use of one, and sometimes two, flexible couplings and external belt take-up arrangements. A torque-arm anchors the reducer and provides quick, easy adjustment of the Wedge Belts by means of its turnbuckle

澳柯曼SMR 系列轴装式减速机共有八种型号，从B 到 J，最大功率可达130KW，名义速比5: 1, 13 :1 以及20: 1。可选择不同的输入皮带轮以达到各种各样的输出转速。

AOKMAN SMR Series Shaft Mounted Reducer are manufactured in eight gear case sizes, from B to J, nominal gear ratios are 5:1, 13:1 and 20:1. A very wide choice of final driven speeds can be determined by the use of an appropriate input Wedge Belt Drive.

减速机用普通的润滑油进行润滑，也可以使用等效的合成油进行润滑。

The units will normally be oil lubricated, but they are equally suitable for synthetic lubricants.

三、使用系数 Service Factor

1. 选出被驱动机械的减速机使用系数。 Select the service factor application to the drive.

使用系数表 Service factor form

被驱动机器类型 Types of Driven Machine	每天工作小时数 Operational Hours Per Day		
	10 小时以内 Under 10	10 到16 小时 10 to 16	超过16 小时 Over 16
均匀载荷 Uniform 搅拌机和混和机-液体或半液体 Agitators and Mixers-Liquid or Semi-Liquid 离心式鼓风机 Blowers-centrifugal 输送机和升降梯-均匀载荷 Conveyors and Elevators-uniformly loaded 洗涤机(无正反转) Laundry Washing Machines(non-reversing) 离心泵和齿轮泵 Pumps-centrifugal and gear 拉丝机 Wire Drawing Machines	1.0	1.12	1.25
中等冲击载荷 Moderate Shock 搅拌机和混和机-密度不均匀 Agitators and Mixers-variable density 输送机-非均匀载荷 Conveyors-not uniformly loaded 行走机构和提升机构 Travel motion and hoisting 卷扬机 Hoists 水泥窑 Kilns 滚筒式洗衣机 Laundry Tumblers 起升机 Lifts 三缸或多缸活塞泵 Piston Pumps-with 3 or more cylinders 制浆机和造纸机 Pulp and Paper Making Machinery 橡胶搅拌机 Rubber Mixers 纺织机械 Textile Machinery	1.25	1.40	1.60

强冲击载荷 Heavy Shock 压砖机 Brick Presses 煤砖机 Briquetting Machines 往复式或抖动式输送机 Conveyors-reciprocating and shaker 破碎机 Crushers 往复式给料机 Feeders-reciprocating 锤式破碎机 Hammer Mills 单缸或双缸活塞泵 Piston pumps-1 or 2 cylinders 橡胶割碎机 Rubber Masticators 振动机 Vibrating Machines	1.6	1.8	2.0
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2. 设计功率及输出转速 Design Power and Output Speed

确定减速机的输出转速，即被驱动机器的需求转速。用被驱动机器的需用功率乘以在第一步中选择的使用系数（若需用功率不知道，则可以乘以输入电机的功率）。

Determine the output speed of the gear units, multiply the absorbed power (or Motor power if absorbed power not known) by the service factor chosen in step 1.

注意：减速机在启动或运转时可以瞬时承受两倍的额定扭矩或功率。

Note: Gear units are momentarily capable of transmitting twice the rated capacity on start or during operation.

3. 选择减速机型号 Unit Selection

根据减速机的输出转速及第二步中计算出的功率在第5页和第6页的额定功率表中选出需求的减速机。

According to the output speed and design power value from step 2 refer to the power rating tables on page 5th and 6th select the correct size of unit.

选择单级减速或双级减速是根据被驱动机器的需求转速决定的，减速机的额定输出转速即功率表（第5页和第6页）和皮带驱动表（第11页到第18页）中的输出转速。表中没有的转速，请咨询澳柯曼。

The choice of single or double reduction gearbox will be determined by the output speed required. The normal operating speeds for each of the gearboxes may be observed in the power rating (page 5th and 6th) and belt drive tables (page 11th to 18th). For other speeds please consult AOKMAN.

注意：当使用5:1减速机时，逆止器不推荐使用。

Note: When use 5:1 Gear Units, the backstop do not recommended.

4. 驱动皮带选择 Belt drive selection

1440 转交流电机驱动皮带选择

Selection of associated belt drive for 1440 rpm electric motors

4.1. 输出转速 Output Speed

参考皮带选择表（第11页到第18页），在选出的减速机型号及速比下，找到等于或最接近的输出转速，推荐的速比在第一栏中。

Refer to the Drive Selection Tables (Pages 11th to 18th) and under the appropriate gearbox size and ratio read down the column headed 'Output Speed' until an Output Speed equal or near to that required is found. The suggested gearbox ratio is given in the first column.

4.2. 皮带轮直径 Pulley Diameters

根据输出转速选择对应的电机皮带轮和减速机皮带轮的节圆直径，以及轮槽形式和合适的皮带根数。

According to the output speed to choose the appropriate driving and driven pulley pitch diameters, groove section and the appropriate number of belts.

注意：很多情况下，为了传递合适动力的目的，推荐用一根皮带；若客户倾向于用多根皮带时，请咨询澳柯曼。

Note: In many instances one belt is recommended, being adequate for power transmission purposes; When customer preference is for multi-belt drives, please consult AOKMAN.

4.3. 中心距 Center Distance

皮带的长度和中心距可以在相应的手册中查出。

Belt length and center distance can be found by referring to the appropriate pages of the 'Wedge Belt Drives' catalogue.

注意：13到16页已经给出了大部分最经济的转速需求。若需求比较特殊的转速，请咨询澳柯曼技术中心。当减速机工作时，扭力臂应该在张紧状态。若有任何疑问，请咨询澳柯曼。

NOTE: Wedge belt drives shown on pages 13th to 16th have given the most economical total drive package for the speed required. If it is necessary to design a special drive, please consult AOKMAN. Torque arm should preferably be in tension when unit is in operation.

5. 非1440 转交流电机驱动皮带选择

Selection of associated belt drive for driving speeds other than 1440 rpm

5.1. 减速机的输入转速 Gearbox Input Shaft Speed

用减速机的输出转速（即被驱动机器的需求转速）乘以减速机的精确速比（参考第8页）来确定减速机的输入转速。

Multiply the gearbox output speed by the EXACT GEAR RATIO (reference page 8th) to obtain the gearbox input shaft speed.

5.2. 选择 'V' 带 Selection of 'V' Drive

根据手册查出相应的V型带。

The correct belt drive can now be selected by referring to the 'Wedge Belt Drives' catalogue.

6. 选型举例 EXAMPLE

一均匀负载的升降机，输入转速50转/分，输入功率4.4KW，每天工作24小时，电机5.5KW，1440转/分，电机和轴装式之间用皮带轮联接，中心距约700mm，试选择轴装式，皮带及皮带轮。

A shaft Mounted Speed Reducer is required for a uniformly loaded elevator which absorbs 4.4KW at 50 rpm. The prime mover is a 5.5KW 1440 rpm direct on line start electric motor. A belt drive is required between the motor and gearbox at approximately 700mm centers running for up to 24 hours/Day.

6.1. 减速机选择 Gear Unit Selection

1. 使用系数 Service factor

从使用系数表中可得该升降机的服务系数是1.25；

From table 1 the service factor is 1.25.

2. 设计功率 Design Power

升降机的输入功率为4.4KW，则设计功率为1.25 x 4.4 = 5.5KW；

Using the elevator absorbed power of 4.4KW, Design Power = 1.25 x 4.4 = 5.5KW

3. 选择减速机 Unit Selection

用5.5KW做为减速机选型的基础，查功率表（第6页）可以选出E13或E20减速机在输出50转/分钟时传递功率为5.81KW。

Using 5.5KW as the basis for selection reference to the power rating tables (page 6th) indicates that E13 or E20 gear unit will transmit 5.81KW at 50 rpm.

6.2. 选择皮带 Selection of associated belt drive

1. 输出转速 Output Speed

比较经济的皮带驱动应该选择20:1的速比，参考第13页中输出50转/分钟的配置。

A more economic belt drive will be obtained if the 20:1 ratio gearbox is selected, any by reference to page 13 in the gearbox drive tables 50 rpm is obtainable.

2. 皮带轮直径 Pulley Diameters

参考第14页中输出50转/分钟一行中的主动皮带轮和被动皮带轮的直径及皮带的类型及根数，主动带轮直径100mm，被动带轮直径140mm，2根SPA的，V型皮带。

On the line giving the output speed of 50 rpm, read across and note the driving and driven pulley pitch diameters together with the numbers of belts required, which for this case is 100 mm and 140 mm, using 2 SPA Wedge Belts.

3. 皮带选择 Belt Selection

参考“V 型带”样本可以选择出SPA1800 皮带的中心距可以达到711mm。

By reference to the 'Wedge Belt Drives' catalogue, it can be seen that SPA 1800 belts give 711mm centers.

四、额定功率表 Power Rating

额定功率表(KW) 5:1 (单级减速)

Power Rating(KW) Table For Single Reduction 5:1 Units

输出转速 Output(rpm)	SMR 型号(SMR Size)							
	B5	C5	D5	E5	F5	G5	H5	J5
100	2.68	4.20	6.62	10.29	15.12	25.2	36.2	62.2
110	2.87	4.62	7.08	11.03	16.07	27.6	38.9	67.2
120	3.13	5.04	7.46	11.76	17.01	29.9	41.4	72.5
130	3.36	5.31	7.77	12.34	17.85	31.5	43.4	76.7
140	3.56	5.54	8.11	12.71	18.59	32.6	45.2	79.2
150	3.62	5.78	8.30	13.13	19.22	33.6	47.3	81.9
160	3.73	5.88	8.51	13.55	19.95	34.7	48.3	85.1
170	3.83	5.90	8.72	13.76	20.37	35.1	49.9	88.2
180	3.94	6.09	8.93	14.18	21.00	35.7	51.5	90.3
190	4.04	6.30	9.14	14.49	21.53	36.8	52.5	93.5
200	4.20	6.49	9.45	14.91	22.05	37.8	53.6	96.6
210	4.31	6.53	9.66	15.23	22.47	38.5	54.6	98.7
220	4.41	6.72	9.87	15.75	23.10	39.3	56.2	101.9
230	4.53	6.87	10.06	16.07	23.63	40.0	57.3	104.0
240	4.66	7.04	10.29	16.49	24.26	41.1	58.8	107.1
250	4.78	7.14	10.71	16.80	25.04	42.1	60.4	109.2
260	4.89	7.35	10.92	17.01	25.41	43.1	61.3	111.3
270	5.04	7.46	11.13	17.85	26.25	44.1	63.0	113.4
280	5.20	7.56	11.55	18.38	26.78	45.2	64.1	115.5
290	5.36	7.77	11.76	18.90	27.41	46.2	65.1	116.6
300	5.46	7.98	12.08	19.43	27.83	47.4	66.2	118.7
310	5.62	8.17	12.34	19.95	28.67	48.6	67.7	122.9
320	5.78	8.30	12.60	20.27	29.61	49.4	69.4	123.9
330	5.88	8.51	13.02	20.90	30.35	50.9	70.9	125.0
340	6.09	8.72	13.44	21.11	31.08	52.3	71.6	125.5
350	6.30	8.82	13.76	21.84	31.71	53.3	73.5	126.0
360	6.41	9.03	14.18	22.26	32.60	54.6	74.6	128.1
370	6.62	9.24	14.44	22.79	33.60	55.7	75.6	129.2
380	6.72	9.45	14.70	23.10	34.49	56.7	77.7	130.2
390	6.93	9.56	15.23	23.52	35.07	58.8	79.8	131.3
400	7.14	9.66	15.65	24.57	35.91	59.9	81.9	134.2
输出100 转/分时扭矩 Nm(Torque at100rpm)	256	401	632	983	1444	2407	3457	5940

注意：当使用5: 1 减速机时，逆止器不推荐使用。
Note: Backstops do not recommend for 5:1 Units.

额定功率表(KW) 13:1 或20:1 (双级减速)

Power Rating(KW) Table For Double Reduction 13:1 and 20:1 Units

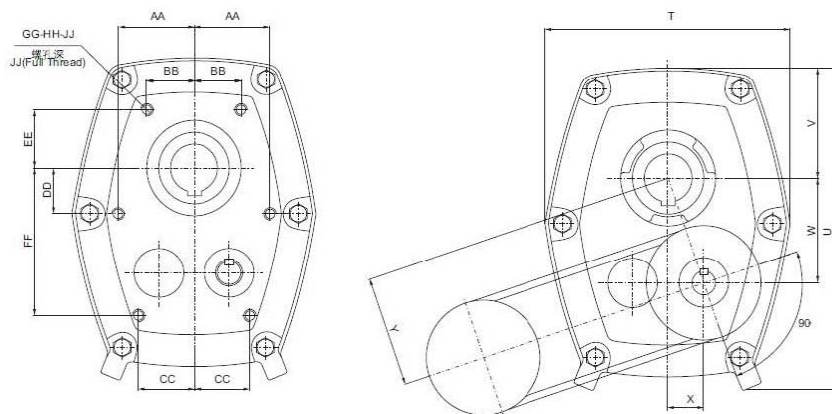
输出转速 Output(rpm)	SMR 型号(SMR Size)							
	B13/B20	C13/C20	D13/D20	E13/E20	F13/F20	G13/G20	H13/H20	J13/J20
10	0.29	0.49	0.82	1.25	1.97	3.11	4.9	7.8
12	0.36	0.58	0.96	1.48	2.45	3.71	5.9	9.2
14	0.42	0.67	1.11	1.73	2.71	4.30	6.8	10.7
16	0.47	0.77	1.27	1.97	3.09	4.89	7.7	12.1
18	0.53	0.86	1.41	2.20	3.44	5.48	8.7	13.6
20	0.59	0.96	1.58	2.43	3.82	6.08	9.5	15.1
22	0.63	1.04	1.73	2.67	4.18	6.63	10.4	16.4
24	0.69	1.13	1.86	2.89	4.55	7.22	11.3	17.9
26	0.75	1.22	2.02	3.13	4.91	7.79	12.1	19.3
28	0.81	1.32	2.18	3.36	5.27	8.35	13.1	20.6
30	0.86	1.41	2.32	3.58	5.63	8.92	13.9	22.5
32	0.92	1.50	2.47	3.81	4.98	9.49	14.8	23.6
34	0.98	1.60	2.63	4.04	6.34	10.04	15.7	25.1
38	1.10	1.79	2.91	4.48	7.05	11.12	17.4	27.6
40	1.16	1.87	3.07	4.71	7.41	11.87	18.2	29.0
42	1.20	1.96	3.19	4.92	7.75	12.39	19.3	30.1
46	1.30	2.13	3.48	5.37	8.28	13.65	21.1	32.6
50	1.42	2.30	3.78	5.81	9.07	14.60	22.8	35.0
52	1.47	2.37	4.00	6.03	9.14	15.23	23.4	35.6
54	1.52	2.47	4.14	6.23	9.42	15.86	24.4	36.3
58	1.64	2.61	4.43	6.66	10.02	16.80	25.8	38.0
62	1.76	2.77	4.71	7.23	10.61	17.96	27.5	40.2
66	1.86	2.94	5.01	7.68	11.24	19.01	29.7	42.5
70	1.96	3.07	5.13	8.11	11.76	20.16	30.6	44.7
74	2.06	3.18	5.42	8.54	12.39	21.11	32.0	47.0
78	2.15	3.32	5.70	8.97	12.92	22.26	33.6	49.2
80	2.23	3.39	5.81	9.19	13.23	22.47	34.3	50.2
85	2.34	3.58	6.14	9.71	13.97	23.31	36.2	52.8
90	2.48	3.79	6.49	10.24	14.60	24.57	37.9	55.3
95	2.61	4.00	6.81	10.50	15.44	25.83	39.0	58.0
100	2.73	4.19	7.15	11.03	16.17	27.09	40.7	60.5
105	2.85	4.41	7.48	11.55	17.01			
110	2.98	4.62	7.81					
115	3.11							
输出100 转/分时扭矩 Nm(Torque at100rpm)	277	468	783	1194	1881	2970	4680	7449

注意：表格中划线的上方配置适合20:1 减速机，较大的输出转速，推荐使用13:1 或5:1 减速机。

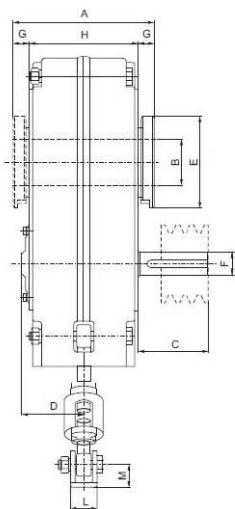
Note: The line shows the limit of recommended output speed for reducers with 20:1 ratio. For higher speeds use a 13:1 or 5:1 reducer.

五、减速机尺寸 Dimensions

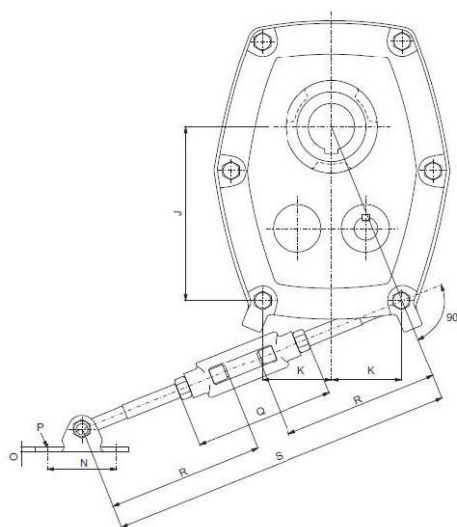
轴装式减速机外形尺寸 Shaft Mount Reducer Dimensions



法兰安装(Flange Mounted)



轴装式(Shaft Mounted)



尺寸 Dimensionmm		SMR 型号 (SMR Size)							
		B	C	D	E	F	G	H	J
A		134	142	152	170	189	212	242	257
D	标准轴径Standard	30	40	50	55	65	75	85	100
	可选轴径Alternative	40	50	55	65	75	85	100	120
C		63	72	77	85	90	105	116	135
B		59	65	68	76	87	110	115	119
E		80	90	100	115	130	145	170	200
F		19	22	25	28	32	42	48	55
输入轴键槽 (Input Shaft Key way)		6X3.5X50	6X3.5X59	8X4X63	8X4X70	10X5X70	12X5X90	14X5.5X100	16X6X100
G		15	17	17	20	20	20	26	30
H		104	108	118	130	149	172	190	197
J		131	156	188	222	242	277	330	424
S		55	59	76	90	98	110	88	102
R		24	24	28	28	34	34	70	70
M		20	20	24	24	30	30	50	50
N		50	70	70	75	75	85	85	150
O		10	16	16	18	18	20	20	30
P		8.5	10.5	10.5	13	13	14.5	14.5	25
Q		200	200	216	216	216	216	222	222
L		300	300	350	350	375	375	375	375
K	最小Min	600	600	700	700	750	750	750	750
	最大Max	750	750	850	850	900	900	900	900
T		186	218	258	278	317	365	434	542
W		241	282	338	386	419	475	550	700
V		81	96	117	129	143	162	195	254
U		75	90	110	125	141	156	189	255
X		25	31	37	43	50	56	62	75
Y		79	95	116	133	150	166	200	266
AA		-	132	155	188	197	224	281	330
BB		34	40	50	57	67	74	64	74
CC		33	40	48	61	64	74	81	98
DD		-	44	59	57	76	86	79	-
EE		41	52	61	62	76	87	122	164
FF		53	-	-	90	100	115	150	200
GG		4	4	4	6	6	6	6	5
HH		M8	M10	M12	M12	M16	M16	M20	M20
JJ		15	15	17	18	19	24	29	32
重量 Weight(kg)	5:1	15	21	30	41	53	82	133	194
	13:1-20:1	16	22	32	46	58	92	144	208
实际传动比(Exact Gear Ratios)									
名义传动比 Normal Ratio	5:1	5.05	5.05	5.047	5.047	5.047	5.047	5.047	5.047
	13:01	13.984	13.596	13.589	13.589	13.589	13.589	13.589	13.589
	20:01	20.997	20.466	20.456	20.456	20.456	20.456	20.456	20.456

六、工程技术参数 Engineering/Technical

1. 标准输出轴孔 Standard Hub Bores

公制输出轴孔公差为ISO F7, 和其配合的轴径公差推荐用h7。轴键槽尺寸必须符合ISO 标准。
Metric hubs are bored to F7 limits, A shaft tolerance grade h7 is recommended. Shaft keyways must be to appropriate standard dimensions.

比标准输出轴孔小的输出孔径也可以根据客户需要进行加工。尺寸表中可选输出轴孔是每种规格最大的输出孔径。

Smaller bores are available to customer requirements. The Alternative hub bore is the maximum bore available in each unit size.

2. 标准输入轴和键 Standard Input Shaft and Keys

输入轴为精磨的ISO h6 公差, 和其相配合的皮带轮或其他轮孔推荐用ISO H7 公差。轴键符合ISO 标准, 参考尺寸表, 发货时提供输入轴用平键。

Input shafts are ground to h6 limits, the pulley or other bores' tolerance grade H7 is recommended. Shaft keyways are milled in accordance with ISO standards, see the dimensions in the table, the key is supplied.

3. 标准输出轴孔键槽 Standard Hub Keyways

输出轴孔键槽是根据ISO 标准加工的, 发货时输出轴孔用键不提供。
Keyways for the standard Output Hubs are machined in accordance with ISO standards, Output hub keys are not supplied.

和输出轴相配合的轴上键槽也必须根据ISO 标准加工, 如下表。

Shaft keyway should be machined to suit the standard key size shown below.

轴径 (Shaft Diameter) (mm)	20	25	30	32	35	38	40
键 Key Size(mm)	6x6	8X7	8X7	10X8	10X8	10X8	12X8
轴径 Shaft Diameter(mm)	42	45	50	55	60	65	70
键 Key Size(mm)	12x8	14X9	14X9	16X10	18X11	18X11	20X12
轴径 Shaft Diameter(mm)	75	80	85	90	95	100	110
键 Key Size(mm)	12x8	14X9	14X9	16X10	18X11	18X11	20X12
轴径 Shaft Diameter(mm)	120	125	-	-	-	-	-
键 Key Size(mm)	32x 18	32X18					

七、减速机订购 SMR Gearbox Ordering

1. SMR 轴装机订购 How to order the SMR gear box

1.1. 轴装机代号 Gearbox Coding

前三个字母为: SMR

第四个字母为减速机型号: B C D E F G H J

第五、第六个字母为减速机速比代号: 05 13 20

第七个字母为减速机的安装固定方式: 0 为轴装式 2 为法兰安装

第八个字母为减速机的输出轴孔径: 1 为标准输出轴孔径 2 为可选输出轴孔径。

First three letters: SMR

Fourth Letter, Unit Size: B C D E F G H J

Fifth and Sixth digits, Ratio Code: 05 13 20

Seventh digit, Indicates Assembly: 0 Shaft Mounted Speed Reducer, 2 Flange Mount

Eighth Digit: Indicates Output Hub bore required: 1 Standard Metric bore, 2 Alternative Metric bore

1.2. 例如 Example

型号为E, 名义速比为20:1, 轴装式, 标准公制输出孔径 (55mm): SMR-E2001.

Size E Unit 20:1 nominal Gear Ratio, shaft mounted with standard Metric Hub Bore(55mm): SMR-E2001.

若需要安装逆止器, 则必须单独订购, 还必须指明输出轴的旋转方向。如: SMR-E2001 带逆止器, 输入轴一侧, 输出空心轴为顺时针转动。

If backstop are required, these should be order separately, and must specify the output hub rotation. E.g. :SMR-E2001 complete with backstop, In the input shaft side, the output hub's rotation is in clockwise.

2. 可选特性 Optional Extras

2.1. 逆止器 Backstops

当减速机需要反向止动时, 可以使用逆止器。打开输入轴另一侧的逆止器盖, 可以很方便的安装逆止器。

A backstop may be incorporated on applications where it is necessary to prevent reversal of rotation. It is quickly installed within the reducer, by simply removing a cover plate.

注意: 当使用5:1 减速机时, 不推荐使用逆止器。

Note: For ratio 5:1 gear box, backstop do not be recommended.

2.2. 法兰安装 Flange Mounting

SMR 轴装机也可以直接用螺栓固定在支撑架上。这种法兰安装的形式允许设计者在应用设计时省掉一个轴承或支座, 但是, 当然也就把轴装机可以自由调节皮带的松紧的特性消除了。参考第 7 页。

SMR case design is such that the reducer can be bolted direct to supporting framework. This flange mounting use of the reducer may permit designers to omit a bearing or pillow block, but it does, of course, eliminate the easy belt adjustment feature characteristic of shaft mount. See page 7th.

注意: 标准 SMR 齿轮箱没有钻这些安装孔, 若需要这种法兰安装方式, 则订购时需特别指明。

Note: Standard SMR Gearbox do not drill mount screws, when customer need these kinds mount, please specify in the order.

八、皮带驱动 Belt Drives 1440rpm 电机 1440rpm Motors

减速机 Unit	名义输出转速 Nominal Outputrpm	皮带轮速比 Pulley Ratio	皮带轮名义直径 Pulley Pitch Diameters (mm)		皮带轮数及类型 Number of Belts
			Motor	Gearbox	
B20	10	6.67	75	500	1SPZ
	12	5.63	71	400	1SPZ
	14	5.00	63	315	1SPZ
	16	4.20	75	315	1SPZ
	18	3.73	75	280	1SPZ
	20	3.50	90	315	1SPZ
	22	3.13	80	250	1SPZ
	24	2.82	71	200	1SPZ
	26	2.63	95	250	1SPA
	27	2.54	63	160	1SPZ
	30	2.25	71	160	1SPZ
	32	2.13	75	160	1SPZ
	34	2.00	80	160	1SPZ
	36	1.88	80	150	1SPZ
	38	1.80	100	180	1SPZ
	39	1.76	71	125	1SPZ
	41	1.67	75	125	1SPZ
	44	1.56	90	140	1SPZ
	46	1.49	75	112	1SPZ
	49	1.41	71	100	1SPZ
	52	1.33	75	100	1SPZ
	55	1.24	90	112	1SPZ
	57	1.20	75	90	1SPZ
	60	1.14	140	160	1SPZ
	64	1.07	140	150	1SPZ
B13	66	1.56	90	140	1SPZ
	69	1.50	100	150	1SPA
	70	1.47	85	125	1SPA
	72	1.43	140	200	1SPZ
	74	1.39	90	125	1SPZ
	76	1.36	118	160	1SPA
	77	1.34	112	150	1SPZ
	78	1.32	95	150	1SPA
	80	1.29	140	180	1SPZ
	83	1.24	90	112	1SPZ
	85	1.21	132	160	1SPA
	87	1.18	95	112	1SPA
	90	1.14	140	160	1SPZ
	92	1.12	125	140	1SPZ
	97	1.06	132	140	1SPZ
	103	1.00	112	112	1SPZ
	108	0.95	118	112	1SPA
	110	0.94	106	100	1SPA
	114	0.90	125	112	1SPA
B05	119	2.40	75	180	2SPZ
	127	2.24	125	280	2SPZ
	128	2.23	112	250	2SPZ
	135	2.11	95	200	1SPA
	143	2.00	80	160	2SPZ
	145	1.97	71	140	3SPZ
	151	1.89	95	180	1SPA
	160	1.78	90	160	2SPZ
	163	1.75	80	140	2SPZ
	171	1.67	90	150	2SPA
	180	1.58	95	150	2SPA
	183	1.56	90	140	2SPZ
	186	1.53	118	180	1SPA
	194	1.47	95	140	2SPA
	199	1.43	140	200	1SPZ
	210	1.36	118	160	1SPA
	221	1.29	140	180	1SPA
	228	1.25	112	140	2SPZ
	238	1.20	125	150	1SPA
	250	1.14	132	150	1SPA
	257	1.11	180	200	1SPA
	269	1.06	132	140	1SPA
	285	1.00	160	160	1SPA
	300	0.95	100	95	2SPA
	307	0.93	140	150	1SPA
	320	0.89	150	140	2SPZ
	324	0.88	160	125	1SPA
	344	0.83	180	140	1SPA
	356	0.80	140	150	2SPZ
	366	0.78	180	140	1SPA
	380	0.75	200	150	1SPA
	391	0.73	180	132	1SPA
	407	0.70	200	140	1SPA

减速机 Unit	名义输出转速 Nominal Outputrpm	皮带轮速比 Pulley Ratio	皮带轮名义直径 Pulley Pitch Diameters (mm)		皮带轮数及类型 Number of Belts
			Motor	Gearbox	
C20	10				
	12	7.04	71	500	1SPZ
	13	5.63	71	400	1SPZ
	15	5.33	75	400	1SPZ
	16	4.73	71	315	1SPZ
	18	4.44	80	315	1SPZ
	20	3.94	80	250	1SPZ
	22	3.50	90	250	1SPZ
	23	3.13	80	250	1SPZ
	25	3.11	90	280	1SPZ
	29	2.78	90	250	1SPZ
	33	2.40	75	180	1SPZ
	35	2.13	75	160	1SPZ
	37	2.00	80	160	1SPA
	40	1.88	85	160	1SPA
	43	1.75	80	140	2SPZ
	45	1.65	85	140	1SPA
	47	1.56	90	140	1SPA
	51	1.5	90	125	1SPA
	53	1.39	75	100	2SPZ
	55	1.33	71	100	2SPZ
	59	1.27	71	95	1SPA
	63	1.19	80	95	1SPA
	66	1.12	85	95	1SPA
C13	68				
	70	1.56	80	125	1SPA
	72	1.52	132	200	1SPZ
	74	1.47	95	140	1SPA
	78	1.43	140	200	1SPZ
	80	1.36	132	180	1SPA
	82	1.32	106	140	1SPA
	85	1.29	140	180	1SPZ
	88	1.24	132	160	1SPA
	90	1.21	95	112	1SPA
	93	1.18	140	160	1SPZ
	95	1.14	118	132	1SPA
	100	1.12	132	140	1SPA
	106	1.06	132	132	1SPA
	111	1.00	100	95	1SPA
C05	113	2.52	125	315	1SPA
	119	2.39	132	315	1SPA
	127	2.25	140	400	1SPZ
	136	2.22	180	315	1SPA
	143	2.10	150	250	2SPZ
	145	2.00	125	315	1SPA
	151	1.97	160	180	2SPA
	159	1.89	95	250	1SPA
	163	1.79	140	315	1SPZ
	170	1.75	180	160	2SPA
	177	1.68	95	180	2SPZ
	180	1.61	112	315	1SPZ
	183	1.58	200	140	3SPZ
	189	1.56	90	160	2SPA
	199	1.51	106	160	2SPA
	210	1.43	112	180	2SPA
	221	1.36	132	180	2SPZ
	228	1.29	140	200	1SPA
	242	1.25	160	112	2SPA
	250	1.18	95	125	2SPZ
	257	1.14	140	160	2SPA
	269	1.11	180	200	1SPA
	285	1.06	125	132	1SPA
	300	1.00	140	125	1SPA
	317	0.95	132	180	1SPA
	320	0.90	200	118	2SPA
	339	0.89	132	118	2SPA
	344	0.84	140	132	2SPA
	361	0.83	160	112	2SPA
	366	0.80	140	118	2SPA
	375	0.79	150	118	2SPA
	380	0.78	180	100	3SPA
	385	0.76	132	150	2SPA
	391	0.75	200	118	2SPA
	396	0.74	160	180	1SPA
	402	0.72	250	180	1SPA
		0.71	140	100	3SPZ

减速机 Unit	名义输出转速 Nominal Outputrpm	皮带轮速比 Pulley Ratio	皮带轮名义直径 Pulley Pitch Diameters (mm)		皮带轮数及类型 Number of Belts
			Motor	Gearbox	
D20	10	7.04	71	500	1SPZ
	13	5.63	63	400	1SPZ
	14	5.00	71	400	1SPZ
	16	4.44	71	400	1SPZ
	18	3.97	63	355	2SPZ
	20	3.52	71	315	2SPZ
	22	3.13	80	315	1SPZ
	24	2.94	85	315	1SPA
	27	2.63	95	315	1SPA
	28	2.50	100	250	1SPZ
	30	2.35	85	280	1SPA
	32	2.22	90	250	2SPZ
	33	2.11	95	180	1SPA
	37	1.89	95	160	1SPA
	39	1.80	100	160	1SPA
	40	1.75	80	160	2SPZ
	41	1.70	106	140	1SPA
	44	1.50	112	140	1SPA
	47	1.44	125	140	1SPA
	49	1.42	106	150	2SPA
	50	1.36	118	125	1SPA
	53	1.32	106	100	2SPA
	56	1.25	112	90	2SPA
	59	1.20	125	90	2SPA
D13	60	1.18	85	95	2SPA
	63	1.11	118	95	2SPA
	66	1.07	90	150	2SPA
			140	125	2SPA
	67	1.58	200	315	1SPA
	70	1.52	132	200	1SPA
	74	1.47	95	140	2SPA
	74	1.43	140	200	2SPA
	78	1.36	132	180	2SPA
	80	1.32	106	140	2SPA
	82	1.29	140	180	1SPA
	85	1.25	160	200	1SPA
	88	1.21	132	160	2SPA
	90	1.18	95	112	2SPA
	93	1.14	140	160	2SPZ
	95	1.11	180	200	1SPA
	99	1.07	150	160	2SPA
	101	1.05	95	100	2SPA
	106	1.00	125	125	2SPZ
D05	114	2.5	160	400	1SPA
	119	2.39	132	315	1SPA
	127	2.25	140	315	2SPZ
	128	2.23	112	250	2SPA
	135	2.12	118	250	2SPA
	143	2.00	125	250	2SPA
	151	1.89	132	250	2SPA
	159	1.80	100	180	3SPA
	163	1.79	140	250	2SPZ
	163	1.75	180	315	1SPA
	170	1.68	95	160	3SPA
	177	1.61	112	180	2SPA
	181	1.58	200	315	1SPA
	188	1.52	132	200	2SPA
	200	1.43	140	200	2SPA
	204	1.40	100	140	4SPZ
	221	1.36	132	180	2SPA
	221	1.29	140	180	2SPA
	228	1.25	160	200	2SPA
	238	1.20	180	250	2SPA
	250	1.14	140	160	2SPA
	267	1.07	150	160	2SPA
	285	1.00	140	140	

减速机 Unit	名义输出转速 Nominal Outputrpm	皮带轮速比 Pulley Ratio	皮带轮名义直径 Pulley Pitch Diameters (mm)		皮带根数及类型 Number of Belts
			Motor	Gearbox	
F20	10	7.04	71	500	2SPZ
	13	5.63	71	400	2SPZ
	14	5.00	100	500	1SPA
	17	4.20	75	315	2SPZ
	18	3.94	80	400	1SPA
	19	3.77	106	400	1SPA
	20	3.57	112	400	1SPA
	22	3.20	125	400	1SPA
	25	2.86	140	400	1SPA
	26	2.67	118	315	2SPZ
	28	2.50	160	400	1SPZ
	30	2.35	85	180	2SPA
	33	2.12	85	180	2SPA
	35	2.00	125	250	2SPZ
	37	1.89	95	180	2SPA
	40	1.75	180	315	1SPA
	42	1.68	95	160	3SPA
	44	1.60	125	200	2SPA
	45	1.58	200	315	1SPA
	49	1.44	125	180	2SPA
	50	1.40	100	140	3SPA
	52	1.36	118	160	2SPA
	55	1.29	140	180	2SPZ
F13	56	1.25	100	125	4SPZ
	59	1.20	125	150	3SPA
	60	1.18	106	150	3SPA
	62	1.14	132	150	3SPA
	63	1.11	106	118	3SPA
	66	1.07	150	160	2SPA
	67	1.58	200	315	2SPZ
	70	1.52	132	200	2SPA
	72	1.48	160	236	2SPB
	74	1.43	180	250	2SPB
	76	1.39	118	160	3SPA
	80	1.36	150	200	2SPA
F05	82	1.29	140	180	2SPB
	88	1.20	150	180	2SPB
	88	1.21	132	160	2SPA
	93	1.14	132	150	3SPA
	93	1.14	140	160	4SPA
	95	1.12	125	140	4SPA
	100	1.06	132	140	3SPA
	106	1.00	125	125	4SPA
	112	2.54	140	355	2SPB
	114	2.50	200	315	2SPA
	119	2.39	132	315	3SPA
	127	2.25	140	355	2SPB
F05	137	2.09	170	355	2SPB
	143	2.00	200	400	2SPA
	151	1.89	212	400	2SPB
	154	1.85	170	315	3SPA
	159	1.79	224	315	2SPB
	163	1.75	180	355	2SPB
	171	1.67	212	355	2SPB
	181	1.58	224	355	2SPB
	183	1.56	180	280	2SPB
	190	1.5	236	355	2SPB
	200	1.43	140	200	4SPA
	210	1.36	132	180	5SPA
	215	1.33	160	212	3SPB
	221	1.29	140	180	4SPA
	228	1.25	224	280	2SPB
	240	1.19	236	280	2SPB
	250	1.14	140	160	4SPB
	257	1.11	180	200	3SPA
	269	1.06	212	200	2SPB
	285	1.00	200	224	3SPA
	300	0.95	236	224	3SPA
	317	0.9	250	224	2SPB
	340	0.84	280	236	2SPB
	357	0.8	250	200	3SPA
	375	0.76	236	180	3SPB
	380	0.75	315	236	2SPB
	396	0.72	236	170	3SPB
	402	0.71	315	224	2SPB

减速机 Unit	名义输出转速 Nominal Outputrpm	皮带轮速比 Pulley Ratio	皮带轮名义直径 Pulley Pitch Diameters (mm)		皮带根数及类型 Number of Belts
			Motor	Gearbox	
G20	10	7.04	71	500	3SPZ
	12	5.94	106	630	2SPA
	14	5.04	125	630	1SPA
	16	4.44	90	400	3SPZ
	18	4.00	100	400	2SPA
	20	3.57	112	400	2SPZ
	22	3.20	140	400	2SPZ
	25	2.86	118	400	2SPA
	26	2.67	160	315	2SPA
	28	2.50	160	400	2SPZ
	30	2.35	85	200	3SPA
	32	2.23	112	250	3SPZ
	34	2.10	150	315	2SPA
	37	1.89	180	250	2SPA
	40	1.75	150	315	2SPA
	42	1.67	118	250	3SPA
	46	1.53	180	250	3SPA
	51	1.39	180	250	2SPA
	55	1.28	125	160	4SPA
	58	1.21	132	160	4SPA
	62	1.14	132	150	4SPA
	66	1.07	150	160	3SPA
	67	1.58	200	315	2SPA
G13	70	1.52	132	200	4SPA
	72	1.47	170	250	2SPB
	75	1.41	224	315	2SPB
	78	1.36	132	180	5SPA
	81	1.31	180	236	3SPB
	82	1.29	140	180	4SPA
	85	1.25	200	250	2SPB
	88	1.21	132	160	5SPA
	90	1.18	180	212	3SPB
	93	1.14	140	160	5SPA
	95	1.11	180	200	3SPA
	100	1.06	236	250	2SPB
G05	107	2.67	236	630	2SPB
	113	2.52	250	630	2SPB
	114	2.50	200	500	3SPA
	121	2.36	212	500	3SPB
	127	2.22	280	630	2SPA
	129	2.10	150	315	4SPA
	136	2.00	250	500	3SPB
	143	1.97	180	355	4SPB
	151	1.89	212	400	3SPB
	154	1.85	170	315	3SPB
	159	1.79	280	500	2SPB
	169	1.69	236	400	3SPB
	171	1.67	212	355	3SPB
	178	1.60	250	400	2SPB
	181	1.58	200	315	3SPB
	190	1.50	236	355	3SPB
	191	1.49	212	315	3SPB
	200	1.43	280	400	3SPB
	215	1.32	236	315	4SPB
	216	1.27	212	280	4SPB
	225	1.25	224	280	4SPB
	225	1.18	212	250	4SPC
	242	1.13	212	250	4SPC
	252	1.11	315	355	3SPB
	257	1.05	224	236	4SPC
H05	272	1.00	280	280	3SPC
	285	0.95	236	224	4SPC
	300	0.90	236	224	4SPC
	317	0.89	250	224	4SPB
	321	0.85	265	224	3SPB
	340	0.84	280	236	4SPB
	357	0.80	280	224	4SPB
	361	0.76	355	280	3SPB
	375	0.75	315	180	5SPB
	380	0.75	315	236	3SPC
	396	0.72	250	180	6SPB
	402	0.71	315	224	4SPB

减速机 Unit	名义输出转速 Nominal Outputrpm	皮带轮速比 Pulley Ratio	皮带轮名义直径 Pulley Pitch Diameters (mm)		皮带根数及类型 Number of Belts
			Motor	Gearbox	
H20	10	7.00	90	630	3SPZ
	12	5.88	85	500	2SPA
	14	5.04	125	630	2SPZ
	16	4.44	90	400	4SPZ
	18	4.00	100	400	3SPA
	20	3.57	140	500	2SPA
	22	3.20	125	400	3SPA
	25	2.86	140	400	2SPA
	26	2.67	132	400	2SPA
	29	2.39	150	315	3SPA
	34	2.10	150	315	3SPA
	36	2.10	160	315	2SPB
	38	1.97	170	315	2SPB
	39	1.85	140	250	3SPB
	42	1.79	150	250	3SPA
	45	1.67	200	315	2SPA
	46	1.58	132	200	4SPA
	51	1.52	180	250	3SPB
	54	1.39	180	236	3SPB
	60	1.31	180	236	3SPB
	62	1.18	160	180	4SPA
	66	1.13	236	250	2SPB
	H13	67	1.58	200	315
68		1.56	180	280	3SPB
71		1.50	236	355	2SPB
72		1.47	170	250	4SPB
75		1.41	224	315	3SPA
76		1.39	180	250	4SPA
80		1.33	236	315	3SPB
83		1.27	280	355	2SPB
85		1.24	180	224	4SPB
89		1.19	236	280	3SPB
90		1.18	180	212	4SPB
95		1.12	250	280	3SPA
100	1.06	200	212	3SPB	
H05	102	2.81	224	630	3SPB
	107	2.67	236	630	3SPB
	113	2.52	250	630	3SPA
	121	2.36	212	500	3SPB
	127	2.25	280	630	2SPB
	136	2.10	150	315	4SPB
	143	1.91	212	315	2SPB
	149	1.89	236	450	3SPC
	151	1.89	212	400	4SPB
	159	1.79	224	400	3SPC
	163	1.75	180	315	5SPB
	169	1.69	236	400	3SPB
	173	1.65	170	280	5SPB
	178	1.60	250	400	3SPB
	181	1.58	200	315	3SPA
	190	1.50	236	355	4SPB
	191	1.49	212	315	4SPB
	200	1.33	280	400	3SPB
	215	1.32	236	315	4SPB
	216	1.32	212	280	4SPB
	225	1.27	280	355	4SPB
	228	1.18	224	280	4SPB
	242	1.13	212	250	4SPC
	252	1.13	315	355	3SPB
	257	1.11	212	236	5SPB
	272	1.05	224	236	4SPC
	285	0.95	280	280	3SPC
	300	0.90	250	224	4SPC
	317	0.84	280	224	4SPB
	321	0.89	315	280	3SPB
336	0.85	265	224	3SPC	
340	0.80	280	236	4SPB	
357	0.79	355	280	4SPB	
361	0.76	315	224	3SPB	
375	0.75	236	180	5SPB	
380	0.75	315	236	3SPC	
396	0.72	250	180	6SPB	
402	0.71	315	224	4SPB	

九、安装 Installation

1. 齿轮箱安装 Gearbox Installation

正确的安装、润滑和维护是满意使用的前提，因此仔细阅读并严格按照使用说明进行操作是非常必要的。皮带安装及扭力臂安装要注意以下方面。

Satisfactory performance depends on proper installation, lubrication and maintenance. Therefore it is important that the instructions in the installation and maintenance leaflet, supplied with each gearbox, are followed carefully. Some of the important aspects of belt and torque-arm installation are listed below.

1.1. 输入轴上的皮带轮安装时尽可能的靠近减速机，安装减速机到被驱动机时也应该使减速机尽可能的靠近被驱动机若安装得太远会使减速机的轴承承受较大的径向力，造成轴承的过早损坏（如图1所示）。

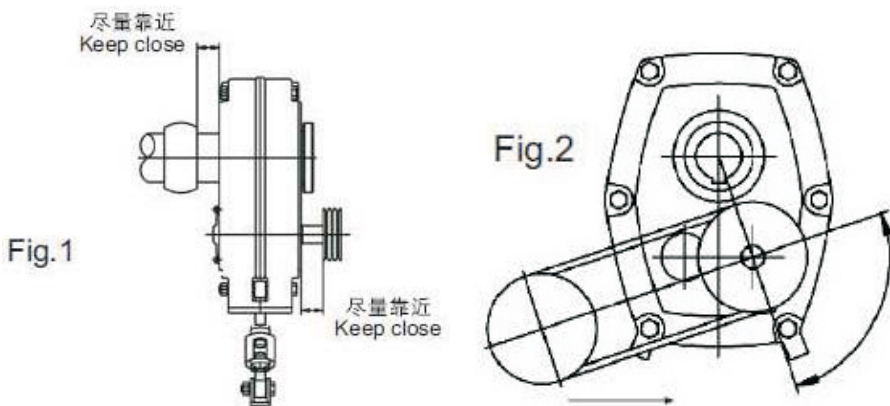
Install pulley on gearbox input shaft as close to the reducer as possible, and mount reducer on driven shaft as close to bearing as practical. Failure to do this will cause excess loads in the input shaft bearings and output bearings and could cause their premature failure (See Figure 1).

1.2. 安装电机时，电机带轮和减速机的输入轴带轮中心的连线应该和减速机输出轴与输入轴中心的连线成大约90°关系（参考图2），这样可以利用扭力臂拉紧皮带。如果输出轴是逆时针旋转，扭力臂最好被固定在减速机的右边（参考图3）。

Install motor and wedge belt drive with the belt pull at approximately 90 to the center line between driven and input shafts (See Fig.2). This will permit tensioning of the wedge belt drive with the torque arm which should preferably be in tension. If output hub runs anti-clockwise, torque arm should be positioned to the right (See Fig.3).

1.3. 把扭力臂支座安装在一个固定支撑上，以便使减速机输出轴中心与扭力臂箱体螺栓的连线与扭力臂成大约90°直角关系（参考图4）。确保扭力臂的调节空间以便正确的调节皮带的松紧。

Install torque-arm fulcrum on a rigid support so that the torque-arm will be at approximately right angles to the center line through the driven shaft and the torque arm case bolt (See Fig.4). Make sure there is sufficient to take up in the turnbuckle for belt tension adjustment.

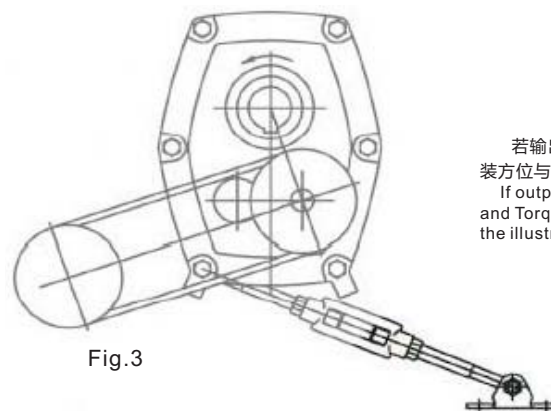


驱动皮带可以放置于任何方便的位置若扭力臂要调节皮带的松紧，则驱动皮带应该与输出轴和输入轴的连接大致垂直。

Belt drive may be located in any convenient position. If the torque arm is to be used to tighten the belts, the drive should be at about right angle to the line between the Input and output shafts.

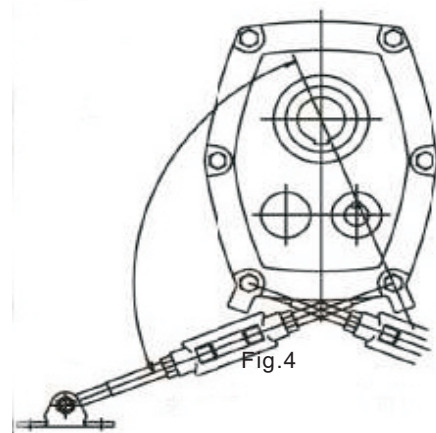
若需要的话，则驱动皮带也可以放在右边。

Belt drive may be located to the right if desired



若输出轴为逆时针旋转，则驱动皮带和扭力臂的安装方位与图示相反。

If output hub rotates clock-wise, position Belt drive and Torque arm in opposite direction to that shown in the illustration.



这个角度大致为直角，但在两侧均可以有30度的变动。

This angle should be a right angle but may vary up to a maximum of 30 either way

扭力臂及皮带拿起
Torque arm and belt take up

若需要，扭力臂也可以安装在右侧
if it is necessary, the torque arm can be mounted on the right side.

十、润滑和安装方位 Lubrication and Mounting Positions

1. 润滑--加油量和推荐润滑油等级

LUBRICATION-QUANTITIES & RECOMMENDED GRADES

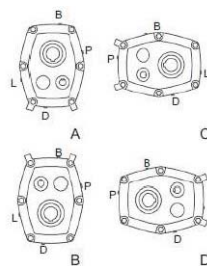
由于轴装式齿轮减速机供货状态为不加润滑油，因此必须在使用前加入合适牌号适量的润滑油。建议用高等级防锈氧化矿物油。

Shaft Mounted Reducer is dispatched without oil. It is necessary to fill the proper amount of oil before running. Use a high-grade petroleum base rust and oxidation inhibited (R&O) gear oil.

2. 加油量 Oil Quantities (liters)

减速机型号 UnitSize	大致加油量 (升) Approximate Capacity-Liters							
	5:1				13:1 & 20:1			
安装方位 Mounting Position	A	B	C	D	A	B	C	D
B	0.4	0.4	0.4	0.5	0.3	0.4	0.5	0.5
C	0.6	0.6	0.7	0.8	0.5	0.6	0.7	0.7
D	1.0	1.2	1.4	1.5	0.8	1.2	1.5	1.3
E	1.9	1.8	2.0	1.9	1.7	1.8	2.0	1.6
G	2.6	2.5	2.5	2.6	2.3	2.5	2.5	2.5
F	3.3	3.3	4.1	4.6	3.0	3.4	4.3	3.9
H	4.8	5.0	7.1	7.1	4.5	5.0	7.0	6.8
J	9.3	12.0	16.0	16.0	7.5	11.0	14.0	13.0

安装方位 Mounting Position



B:通气管 注油孔 P:油塞 L:油位塞 D:排油塞
B:Breather Fill Plug P:Plug L:Oil Level D:Drain

注意:输出转速低于15 转每分钟时,油位塞必须调整到P油塞处。
Note: Below 15 rpm output speed, oil level must be adjusted to reach the highest oil level plug (P).

3. 矿物油 Mineral Oil

	Environment Temperature 环境温度	5:1 RATIO GEARBOXES 5:1速比减速机				13:1 AND 20:1 RATIO GEARBOXES 13:1和20:1的减速机			
		0-100rpm	101-200rpm	201-400rpm		0-20rpm	21-50rpm	51-120rpm	
		BCDEFGHJ	BCDEFGHJ	BC DEFGHJ		BCDEFGHJ	BCD EFGHJ	BCD EFGHJ	
ISO质量体系	-10 to +5	100	100	100	68	150	150	100	100
Viscosity	6 to 25	460	320	320	220	680	680	460	320
Grade	26 to 40	800	680	680	460	800	800	680	460

4. 合成油 Synthetic Oil

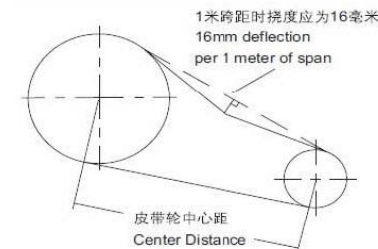
DARMEX 9140 NMND	适用于所有的环境温度和输入转速 SUITABLE FOR ALL AMBIENT EMPEARTURES AND ALL INPUT SPEEDS
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注意: 正常情况下一般不推荐使用极压润滑油, 除非使用逆止器时推荐使用。
NOTE: Do not use E.P. mineral oils other than those recommended when using a backstop.

十一、皮带安装和减速机应用 Belt Installation and Reducer Application

1. 压紧力 Tensioning Forces

皮带 Belt	1 米跨距16 毫米挠度所需压力 Force Required to deflect belt 16mm per meter of span	
	小带轮直径 Small Pulley Diameter(mm)	所需压力 Newton(N)
SPZ	56-95	13-20
	100-140	20-25
SPA	80-132	25-35
	140-200	35-45
SPB	112-224	45-65
	236-315	65-85
SPC	224-355	85-115
	375-560	115-150



2. 皮带张紧调节方法 Method of Belt Tensioning.

2.1. 根据皮带轮中心距计算皮带所要挠度值。中心距 (米) x16=所需挠度 (毫米)

Calculate the deflection distance in mm on a basis of 16mm per meter of span. Center distance(m) x16=Deflection(mm)

2.2. 用弹簧秤和直尺进行测量其所需压力, 若其值在上述表格中, 则表示皮带松紧合适。否则, 旋转扭力臂的螺旋扣调节。(注意, 施力方向和皮带垂直)

Use a spring balance and rule measure the force of the belt, if the value falls within the values given, the drive should be satisfactory. Otherwise, use the Torque arm's turnbuckle adjust the tension of the belt.(Note, the Force direction and the belt should be a right angle.)

设备类型 Machine Type	典型工业 Typical Industries	应用举例 Application Example
输送机 Conveyors	砂石输送 Sand & Gravel 动物饲养 Animal Feeds 污水处理 Water Treatment 农业 Agriculture 采矿 Mining 采石 Quarrying 行李处理 Baggage Handling 散装货物处理 Bulk Handling 港务局 Port Authorities 邮包处理 Post & Parcel 谷物干燥 Grain Dryers	1. 筛式进给器主驱动 Head drum drive for screen feeder. 2. 倾斜岩石输送带主驱动 Main drive on an inclined Basalt conveyor. 3. 轮船装卸升降带主驱动 Ship loading elevator. 4. 螺旋输送机主驱动 Main drive to screw conveyor. 5. 陆路散货输送带主驱动 Overland bulk conveyor drives. 6. 动物饲料输送带主驱动 Main drive for transporting animal feeds. 7. 机场行李处理输送带 Airport baggage handling conveyors.
	动物饲养 Animal Feeds 食品工业 Food Industry 农业 Agriculture 石化 Petrochemical 油漆 Paint 过程处理 Process 工业 Industries 搅拌机 Agitator 通风机 Aerators	1. 饼干面粉混合机 Biscuit dough mixer. 2. 动物饲料磨粉机主驱动 Main drive to animal feed mill. 3. 沥青搅拌机主驱动 Main drive for Asphalt agitator. 4. 动物饲养工厂用(桨状)搅拌机驱动 Paddle drive on animal feed processing plant.
其他应用 Other Applications	起重机和卷扬机 Cranes & Hoists 绞车 Winches 制革和过程处理 Tanning & Processing 纺织机械 Textile Machinery 洗涤机械 Laundry Machines 机床工具, 剪板机等 Machine tools, shears, etc.	1. 正反转工业洗涤机 Reversing duty on an industrial washing machine. 2. 集装箱起吊设备 Container lifting equipment. 3. 气动马达驱动水下绞车系统 Driven by an air motor on an under water winch system. 4. 风力涡轮机驱动-用来增速产生电能 Wind turbine drive-used as speed increasing drive to generate electricity.

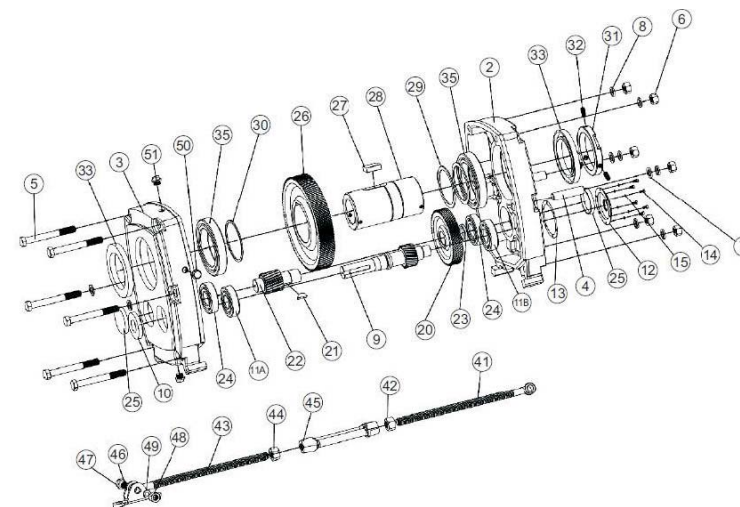
十一、减速机分解图 Gearbox Explosion

零部件订购时请确认 When ordering parts for reducer, please specify

1. 减速机型号 Reducer Size Number
2. 减速机速比 Reducer Ratio
3. 减速机序列号 Reducer Serial Number
4. 零件名称 Part Name
5. 零件代号 Code Number
6. 订购数量 Quantity Required

NO.	零件名称	Part Name
1	箱体1	Gear case one
2	六角头螺塞	Hex head screw
3	六角头螺栓	Hex head bolt
4	骨架油封	Framework oilseal
5	弹簧垫圈	Spring washer
6	六角螺母	Hex nut
7	端面油封	Endface oil seal
8	弹性挡圈	Circlip
9	骨架油封	Framework oil seal
10	视油镜	Oil immersion lens
11	透气塞	Vent plug
12	圆锥滚子轴承	Tapered roller bearing
13	深沟球轴承	Deep groove ball bearing
14	二级轴齿轮	2nd reduction shaft gear
15	输出轴轴套	Output shaft sleeve
16	输出大齿轮	Output big gear
17	C 型平键	C type flat key
18	输出小齿轮	Output small gear
19	卡箍	Clamp
20	内六角平端紧定螺钉	Inner hexagon flat end set screw
21	输出齿轮轴轴套	Output gear shaft sleeve
22	空心输出轴	Hollow output shaft
23	C 型平键	C type flat key
24	箱体2	Gear case two
25	内六角圆柱头螺钉	Inner hexagon cylinder head cap screws
26	弹簧垫圈	Spring washer

NO.	零件名称	Part Name
27	轴承闷盖	Bearing cover
28	油封纸垫	Oilseal gasket
29	轴套	Shaft sleeve
30	双头螺纹圆柱销	Cylindrical pin with double thread
31	输入齿轮轴调整垫	Input gear shaft adjustable shim
32	圆锥滚子轴承	Tapered roller bearing
33	输入齿轮轴	Input gear shaft
34	C 型平键	C type flat key
35	支座	Bracket
36	螺栓	Bolt
37	螺母	Nut
38	支座调节螺母	Bracket adjusting nut
39	螺旋扣	Turnbuckle
40	箱体调节螺栓	Housing adjusting bolt



注意：不是所有型号的减速机都如上所示，型号不同可能零件形状有所不同

Note: Not all the reducer size like the drawing in this leaflet, some size reducer may be different, and some spare parts may different.