

# GT型卷筒联轴器 DRUM COUPLING

 沈阳三环机械厂  
SHENYANG TRIOCIRCLE MACHINERY CORPORATION



## 卷筒联轴器概述

GT型卷筒联轴器是我厂为起重机行业研发的一种新型起重设备用联轴器，具有结构先进，安全可靠的优点，是替代鼓形齿式和鼓形滚子卷筒联轴器的理想产品（亦可替代WZL型卷筒联轴器）。

### 它具有以下优点：

- 能承受大的径向载荷和传递较大的扭矩，具有很高的安全性与可靠性；
- 各部位磨损小，结构厚实，无完全失效之忧，所以无需像老式产品那样使用寿命需靠指针对照；
- 包裹在球面之间的特殊键转动灵活且转动幅度大，安装调试方便；

## 选用说明

根据起重机工作级别，计算和确定卷筒传递扭矩（应考虑试车时的过载系数和其它因素），选择合适型号的卷筒联轴器无特殊情况，卷筒联轴器一般不需另作径向载荷计算。

无特殊要求时，需方注明所订型号即可（如GT10卷筒联轴器）。有其它特殊非标要求时，订货前请需方先提供相关图纸，经我方技术认可后在订货。

## Summarization on Drum Coupling

GT series drum coupling is a new type of coupling for lifting equipment developed by our factory for crane industry. It has the advantages of advanced structure, safety and reliability. And it is the ideal successor of gear drum coupling and drum-shaped roller coupling. (Can be used as a substitute for WZL series drum coupling).

### Its features are as follow:

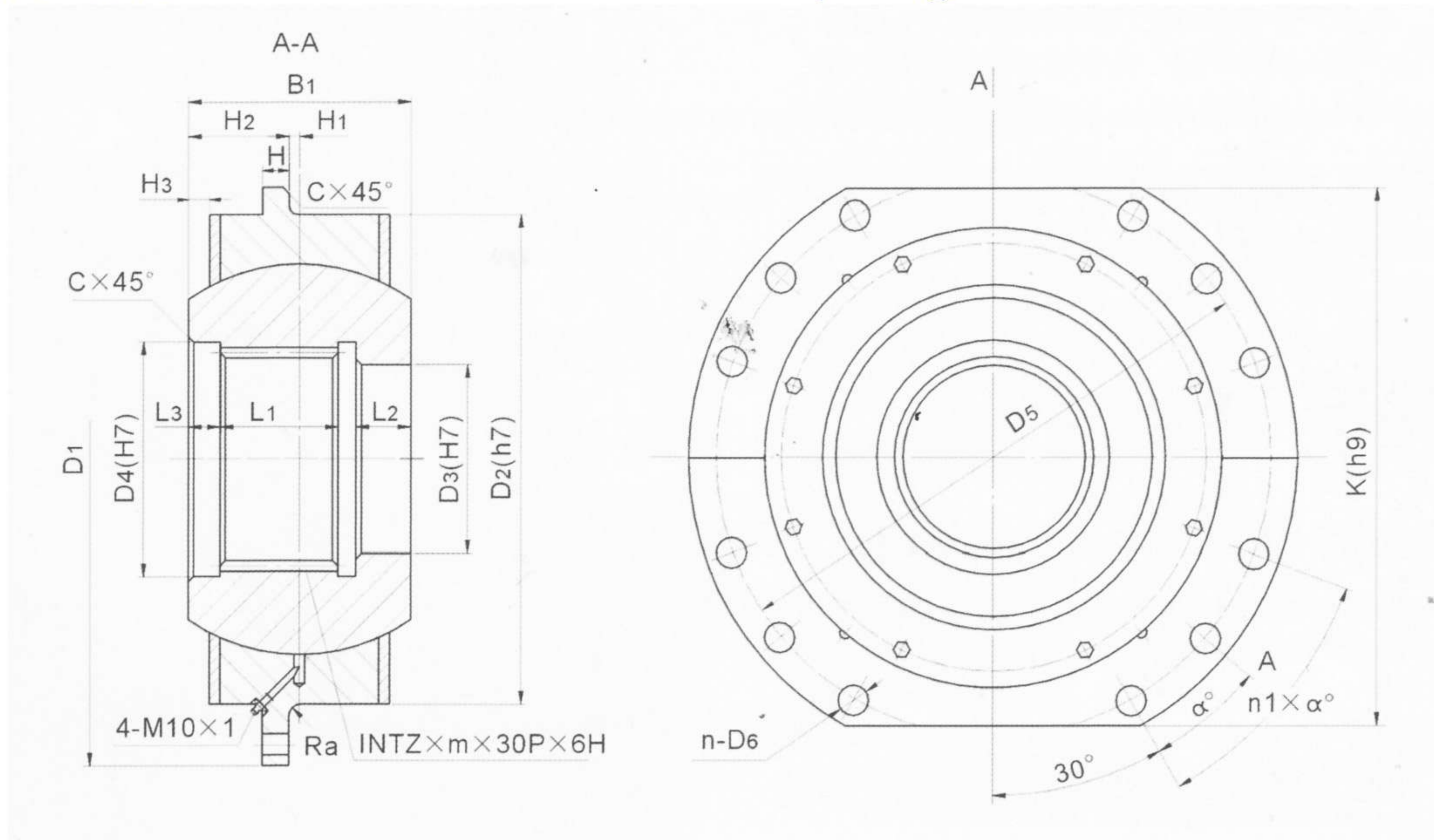
- It is able to withstand heavy radial loads and transmit larger torsion moment and has high security and reliability.
- Little wear, strong structure, no need worrying about security or working failure. so it does not need the pointer like the drum coupling of old fashion style.
- The special key in the sphere surface enables it to turn flexibly; big range of movement is convenient for installing and adjustment.

## Selection of Drum Coupling

please select suitable drum coupling according to the working class, working static torque (please consider the overload factor during test run). Generally speaking, the value of radial load needn't checking calculation.

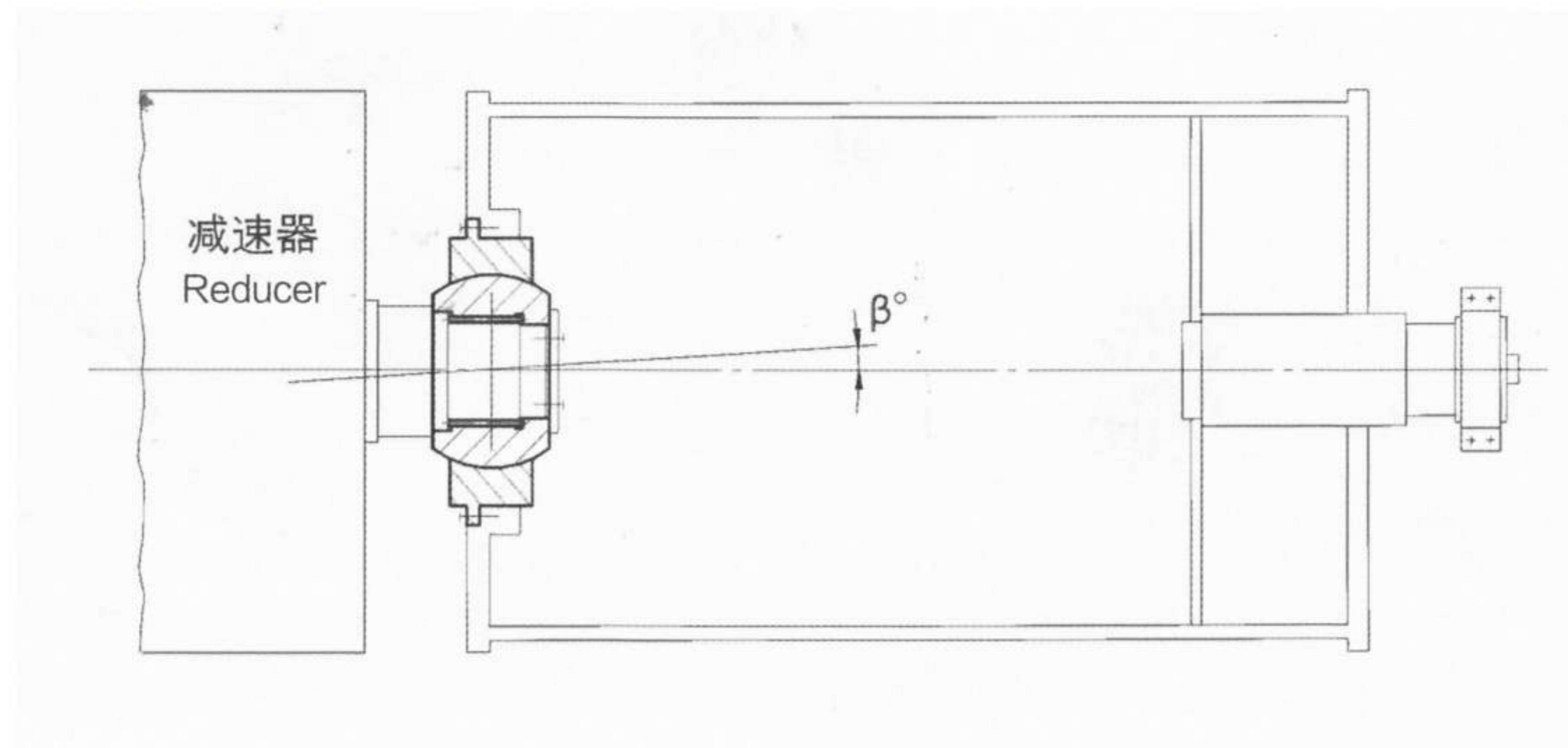
If there is no special requirement, users could only indicate the model when placing an order, for example: WZL12 drum coupling. If any special requirement, please supply your drawings accordingly for our technical reference.

## 卷筒联轴器结构 Structure of drum coupling



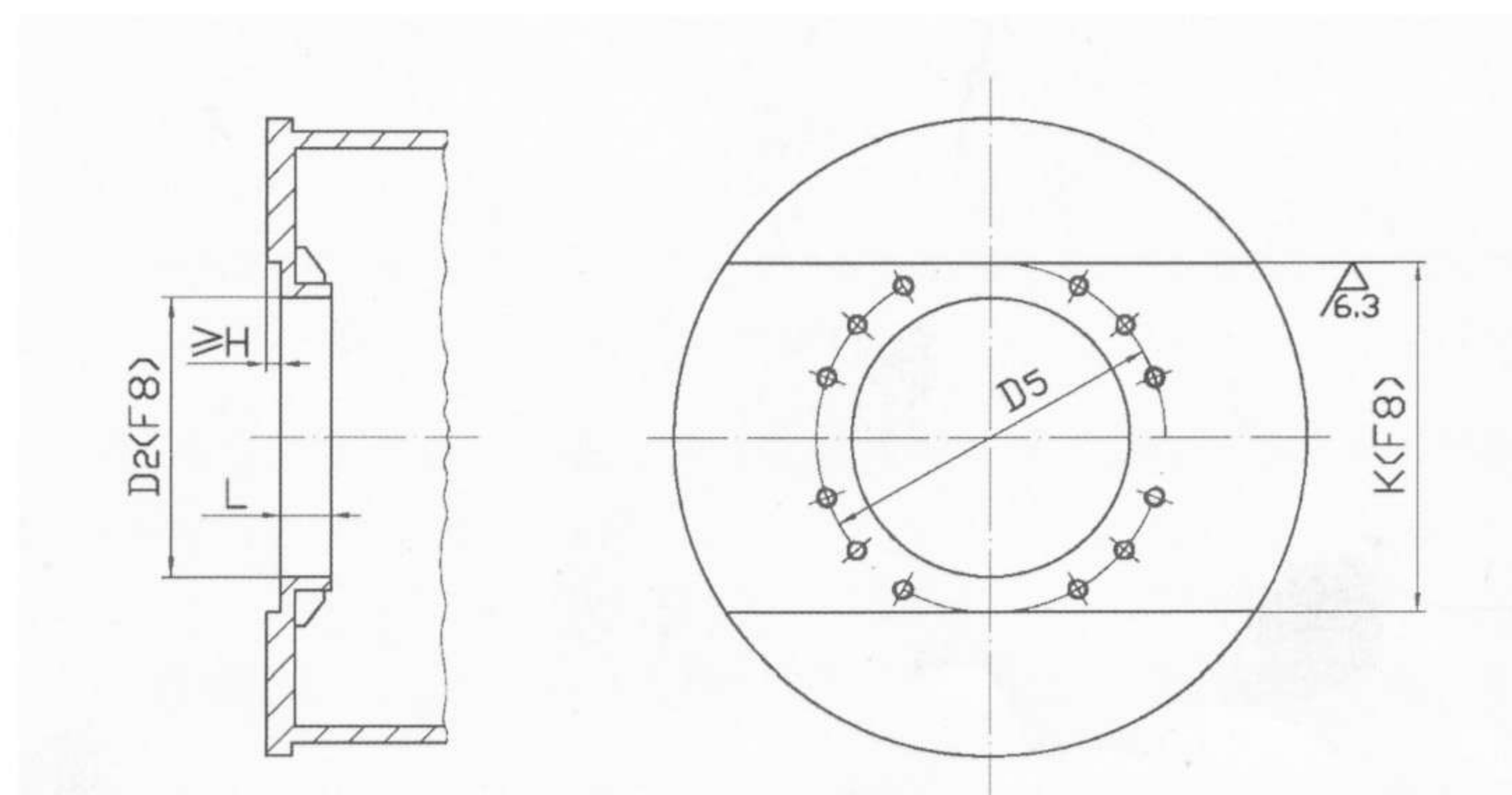
## 卷筒与减速器的联接

### Connection between drum coupling and reducer



## 卷筒联接形式

### Connection form of drum coupling



**注:** 建议L不小于D2圆柱面长度的45%

Note: We suggest L is not less than D2 45% of the length of cylindrical surface.

## 主要性能及尺寸 The main performance and sizes

型号style		GT01 (WZL01)	GT02 (WZL02)	GT03 (WZL03)	GT04 (WZL04)	GT05 (WZL05)	GT06 (WZL06)	GT07 (WZL07)	GT08 (WZL08)	GT09 (WZL09)	GT10 (WZL10)	GT11 (WZL11)	GT12 (WZL12)	GT13 (WZL13)	GT14 (WZL14)	GT15 (WZL15)	GT16 (WZL16)	GT17 (WZL17)	GT18 (WZL18)	
公称转矩 kN·m Nominal torque kN·m		6.3	9	13.3	17	21	26	42	65	85	131	203	318	403	510	641	815	1136	1518	
允许转矩 kN·m Allowed torque kN·m	工作级别 Working class	M3	6.3	9	13.3	17	21	26	42	65	85	131	203	318	403	510	641	815	1136	1518
		M4	5.6	8	11.9	15	19	23	37	57.8	75.4	117.4	183	283	358	459	570	728	1016	1398
		M5	5	7.1	10.6	13	17	21	33	51.6	67	104.8	162.4	252	317	408	509	645	914	1267
		M6	4.5	6.3	9.5	12	15	19	30	46.4	59.5	94.3	142	226	282	362	458	574	813	1135
		M7	4	5.6	8.6	10.6	13	17	27	41.3	53	83.3	126.8	202	252	321	407	513	721	1013
		M8	3.55	5	7.6	9.5	12	15	24	36.6	47.8	74.4	113.6	182	226	286	361	461	640	912
GB/T3478.1 花键 (spline) INT Zxmx30Px6H		15Z × 3m	18Z × 3m	22Z × 3m	27Z × 3m	18Z × 5m	22Z × 5m	26Z × 5m	30Z × 5m	34Z × 5m	38Z × 5m	26Z × 8m	30Z × 8m	34Z × 8m	38Z × 8m	44Z × 8m	50Z × 8m	44Z × 10m	56Z × 10m	
K (h9)		250	280	300	320	340	360	400	450	500	530	580	600	640	700	760	860	1020	1100	
B <sub>1</sub>		80	84	92	97	127	137	157	167	182	192	207	222	237	262	287	352	410	430	
D <sub>1</sub>		300	320	340	360	380	400	450	500	550	580	650	680	710	780	850	950	1120	1200	
D <sub>2</sub> (h7)		190	200	220	240	260	280	340	380	420	450	530	560	600	670	730	840	975	1055	
D <sub>3</sub> (h7)		40	50	60	70	80	100	120	140	160	180	190	220	250	280	320	360	400	540	
D <sub>4</sub> (h7)		50	60	70	85	100	120	140	160	180	200	222	254	286	318	366	420	460	580	
D <sub>5</sub>		260	280	300	320	340	360	400	450	500	530	600	630	660	730	800	900	1055	1135	
H		12	20					25			30			40			55	60	70	
H <sub>1</sub>		3			4		5		6			7		8		9	10	15	25	
H <sub>2</sub>		37	39	43	44.5	59.5	63.5	73.5	77.5	85	90	96.5	104	110.5	123	134.5	166	190	190	
H <sub>3</sub>		2	2.5		3.5			4.5	5.5	6	7	7.5	8	9.5	11	12	13	17	18	
L <sub>1</sub>		30	30	35	40	50	55	70	75	85	95	105	120	135	150	170	220	260	270	
L <sub>2</sub>		18	22	25			30	35	40	45				55	60					
L <sub>3</sub>		22				37									52	65	70			
n-D <sub>6</sub>		8-Φ14	8-Φ18.5					12-Φ23				24-Φ23	24-Φ27.5			24-Φ31				
螺栓bolt		M12	M16					M20				M24			M27					
n1×α°		1×40					2×20				5×10									
Ra		1.6		2			2.5				3			4						
C		1					1.5				2			2.5						
转动惯量 kg·m moment of inertia Kg·m		0.13	0.19	0.27	0.37	0.56	0.76	1.65	2.86	4.49	6.18	12.50	16.40	23.13	39.18	59.25	114.5	260.4	337.8	
重量 kg Weight kg		23	27	33	39	55	66	106	140	185	213	330	379	453	616	775	1375	2145	2475	

注: 如需更大规格的卷筒联轴器我公司亦可设计制造。Note: We can design and produce larger drum coupling if needed.

## 安装与维护

GT型卷筒联轴器在安装过程夹角可达3°，但在使用中夹角不得过大（建议应小于30'），安装精度越高，使用效果越好，使用寿命则大幅延长。

该联轴器与有关部件的配合精度将直接反应其使用效果，如：D2、D3、D4、K（见图）须满足F8（f8）以上精度要求，卷筒联轴器法兰与卷筒接触的平面是否符合精度要求，卷筒法兰螺栓孔与螺栓要有合理的间隙，应选用10.9级螺栓，并按规定预紧，经常检查其可靠性。

减速机出轴端部应有足够大规格和数量的高强度螺栓，按规定预紧并作好有效的防松措施，保证卷筒联轴器与轴不得有轴向串动。如需采用热装时，要求卷筒联轴器整体用气体加热介质（如整体放入电热箱中加热），加热温度应不超过130度，冷后请及时注油（请不要将卷筒联轴器拆开，否则将无法保证其品质）。

由于该联轴器不能补偿轴向位移，所以在工作时的各种因素造成微量轴向长度变化要靠后轴承支座解除轴向约束来补偿，一般情况下左、右有3mm低阻力移动量即可。

联轴器出厂时已注油脂，牌号为7407合成润滑脂；用户可用其它牌号润滑脂代用，正常运行时每月注油一次；四个注油孔均设在卷筒联轴器法兰根部，连接螺纹M10×1，注油时需连接油管，上紧螺纹，转至下方，依次对每个加油孔注油，直至油脂从球面充分溢出。

该联轴器在正常使用和维护下寿命很长，没特殊情况，建议在起重机或减速机大修时对其进行检修和更换即可。

## Installation and maintenance

The max angle of drum coupling can reach 3° during installing. But the working angle should not be large (less than 30' is better). Higher installation accuracy is advantageous to the service life and working efficiency.

The matching precision between drum coupling and relevant parts will reflect in using effect, for instance: D2、D3、D4、K (please check the drawing) should meet the accuracy requirement of F8 at least. There should be some reasonable clearance between the bolt holes and bolts of the flange. Please select the high strength bolts (recommend class 10.9) for connecting flanges, and tighten them with a stipulated pretightening force moment. Please give them routine examinations to ensure their reliability.

Output shaft end of speed reducer should be equipped with high strength bolts, tighten them with a stipulated pretightening force moment to avoid loosening. If the thermal outfit is needed, gas heating for the whole drum coupling is suitable, and the temperature should not exceed 130 degrees. (please don't take apart it, or the quality should not be promised)

It is unable to compensate axial displacement, so the axial constraint of the bearing base must be released, it is suggested that both ends of bearing base should give a gap > 3mm.

It has been already injected by synthetic grease Grade 7407. Users can use other grease for replacement. As a rule, it should be injected once a month. Four lubricating holes (connecting thread M10\*1) are set at the bottom of flanges, please fill grease one by one in turn, the lubricating holes must be lower during oiling until the oil grease overflows from the sphere surface.

Our drum coupling has a long service life under normal use and regularly maintenance. We suggest that it should be overhauled and changed at the time of overhaul maintenance for your cranes or reducers.

## 螺纹紧固件预紧力矩推荐值

Recommended value of preloaded torque of thread fasteners

N·m

螺纹规格d×P Thread Specification	8.8级 8.8 class	10.9级 10.9 class	12.9级 12.9 class
M6	6	8	10
M8×1	14	20	25
M10×1	45	65	80
M12×1.5	80	110	130
M14×1.5	130	180	220
M16×1.5	195	275	330
M18×1.5	280	400	480
M20×1.5	400	570	680
M22×1.5	520	735	880
M24×2	650	920	1100
M27×2	940	1340	1600
M30×2	1350	1900	2280
M33×2	1700	2440	2930
M36×2	2200	3150	3800

**注：**螺栓的机械性能应符合GB/T5785的规定，螺母的机械性能应符合GB/T6176的规定。

Note: The mechanical capacity of bolts should be accorded with GB/T5785 and the mechanical capacity of nuts should be accorded with GB/T6176.