DYSTRYBUTOR

TECHNICAL

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Precyzyjne wały **CARDANA** do prędkości 4000 obr/min

sit
Antriebselemente

Precision Universal Joint

PRECISION UNIVERSAL JOINT

Sit universal joints with plain or needle roller bearings Type “E” - “H” (DIN 808)

Of this series both single and double joints are available. Types E are with sliding bushes while type H has needle roller bearings.

Joints with plain bearings are available in 2 versions:

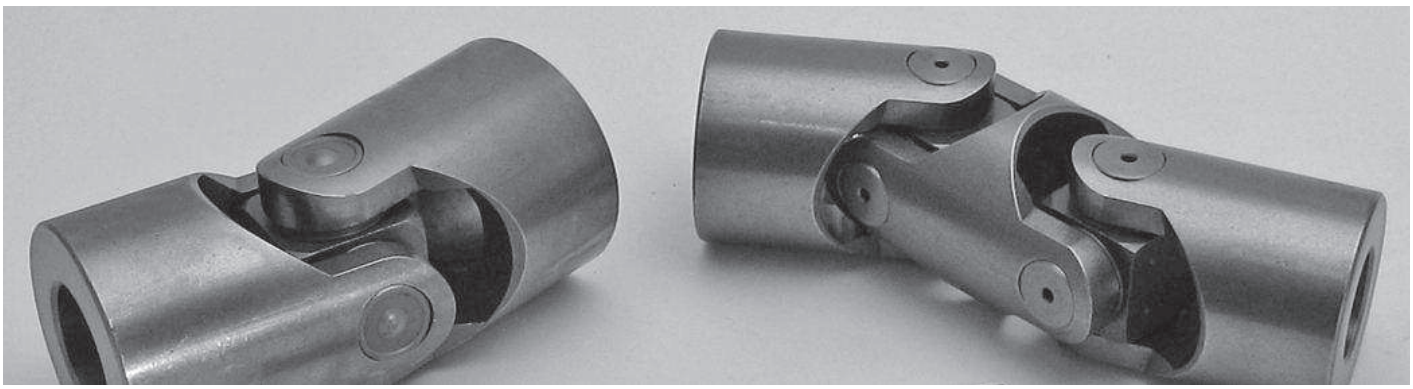
- **types E to DIN 808;**
- **types EB to DIN 808/7551**

Joints with roller bearings are available in 2 versions:

- **types H to DIN 808;**
- **types HB to DIN 808/7551**

They all consist of a star wheel core and 2 half joints with fork ends. Between the pins of the star wheel and the holes of the forks, 4 wear-resistant sliding bushes (for type E) or roller bearings (type H - high speed) are fitted in.
The 4 bushes have holes for lubrication and each one contains a grease reserve.
The hermetic structure prevents lubricant losses and impurity entry.
Neither lubrication or maintenance is required for type H (high speed joints with roller bearings) as their bearings are lubricated for life.

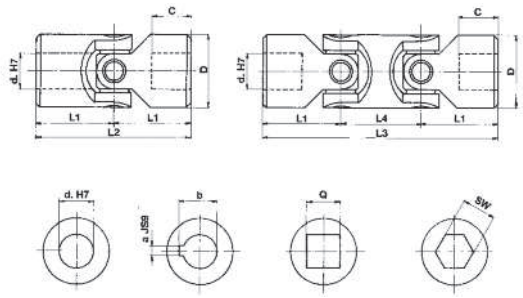
Joints with plain bearings - type E - are for middle-low speeds and where there are shock loads. For high speeds and relatively low torques types with roller bearings (H) are recommended.
Both versions offer high efficiency, silent running, low friction, coefficient at competitive prices.
All rubbing surfaces are hardened and ground.
Maximum working angle is 45° for single joints and 90° for double joints.
Maximum speed is 1.000 rpm for type E, while type H can exceed 4.000 rpm.
All versions are also supplied in telescopic versions.



High speed precision joints with needle roller bearings
Series “H” (DIN 808)

- Roller bearings lubricated for life. No maintenance required.
- Precise and versatile, silent and smooth running; wide application field.
- Max. angle: 45° type “H”, 90° type “HD”, max. speed 4.000 rpm.
- Special executions upon request.

H **HD**



Type	Type	d [mm]	D [mm]	L2 [mm]	L1 [mm]	C [mm]	L4 [mm]	L3 [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Weight [kg]		
													H	HD	
GU03H	**GU03HD**	10	22	48	24	12	26	74	3	11,4	10	10	0,10	0,15	DIN 808
GU04H	**GU04HD**	12	25	56	28	13	30	86	4	13,8	12	12	0,16	0,25	
GU05H	**GU05HD**	14	28	60	30	14	36	96	5	16,3	14	14	0,20	0,40	
GU1H	**GU1HD**	16	32	68	34	16	36	104	5	18,3	16	16	0,30	0,45	
GU2H	**GU2HD**	18	36	74	37	17	40	114	6	20,8	18	18	0,45	0,70	
GU3H	**GU3HD**	20	42	82	41	18	46	128	6	22,8	20	20	0,60	1,00	
GU4H	**GU4HD**	22	45	95	47,5	22	50	145	6	24,8	22	22	0,95	1,55	
GU5H	**GU5HD**	25	50	108	54	26	55	163	8	28,3	25	25	1,20	2,00	
GU6H	**GU6HD**	30	58	122	61	29	68	190	8	33,3	30	30	1,85	2,90	
GU6H1	**GU6HD1**	32	58	130	65	33	68	198	10	35,3	30	30	2,00	3,00	
GU7H	**GU7HD**	35	70	140	70	35	72	212	10	38,3	••	••	3,15	4,75	
GU8H	**GU8HD**	40	80	160	80	39	85	245	12	43,3	••	••	4,60	7,20	
GU9H	**GU9HD**	50	95	190	95	46	100	290	14	53,8	••	••	7,60	12,00	

Type	Type	d [mm]	D [mm]	L2 [mm]	L1 [mm]	C [mm]	L4 [mm]	L3 [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Weight [kg]		
													HB	HBD	
GU04HB	**GU04HBD**	12	22	62	31	18	26	88	4	13,8	10	10	0,12	0,20	DIN 808/7551
GU1HB	**GU1HBD**	16	25	74	37	21	30	104	5	18,3	12	12	0,20	0,30	
GU3HB	**GU3HBD**	20	32	86	43	24	38	124	6	22,8	16	16	0,35	0,50	
GU5HB	**GU5HBD**	25	42	108	54	31	48	156	8	28,3	20	20	0,80	1,20	
GU6HB	**GU6HBD**	30	50	132	66	38	56	188	8	33,3	25	25	1,20	1,70	
GU8HB	**GU8HBD**	40	70	166	83	47	72	238	12	43,3	••	••	2,90	4,30	

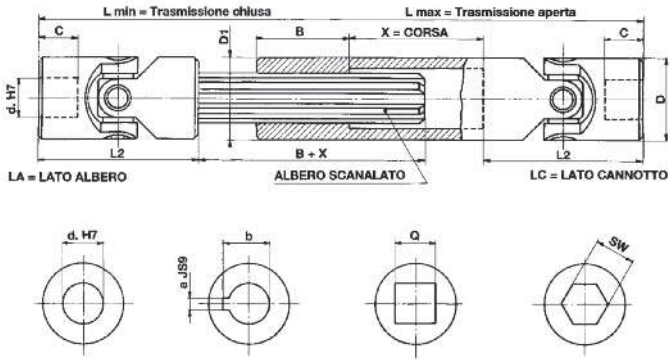
•• = upon request

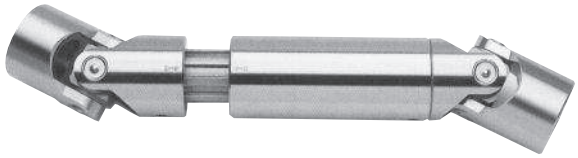
Extensible transmissions high speed
Series “H” (DIN 808)

- High speed joints series “H”, type “HA”, with needle roller bearings.
- Min. and max. length upon request: rpm.

$$L_{MIN} \geq \frac{L_{MAX} + 2\,L2 + B}{2} \qquad \text{Corsa } X \leq \frac{L_{MAX} - 2\,L2 - B}{2}$$

- Special executions on request.





Typo	d [mm]	D [mm]	L2 [mm]	C [mm]	Lmin [mm]	Lmax [mm]	X [mm]	B [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Albero	D1 [mm]
GU03HA	10	22	48	12	upon request			30	3	11,4	10	10	11 x 14 Z6	22
GU04HA	12	25	56	13				40	4	13,8	12	12	13 x 16 Z6	26
GU05HA	14	28	60	14				40	5	16,3	14	14	13 x 16 Z6	29
GU1HA	16	32	68	16				40	5	18,3	16	16	16 x 20 Z6	32
GU2HA	18	36	74	17				40	6	20,8	18	18	18 x 22 Z6	37
GU3HA	20	42	82	18				45	6	22,8	20	20	21 x 25 Z6	42
GU4HA	22	45	95	22				45	6	24,8	22	22	23 x 28 Z6	47
GU5HA	25	50	108	26				45	8	28,3	25	25	26 x 32 Z6	52
GU6HA	30	58	122	29				50	8	33,3	30	30	32 x 38 Z8	58
GU7HA	35	70	140	35				70	10	38,3	••	••	36 x 42 Z8	70
GU8HA	40	80	160	40				80	12	43,3	••	••	42 x 48 Z8	80
GU9HA	50	95	190	50				90	14	53,8	••	••	46 x 54 Z8	95

Tipo	d [mm]	D [mm]	L2 [mm]	C [mm]	Lmin [mm]	Lmax [mm]	X [mm]	B [mm]	a [mm]	b [mm]	Q [mm]	SW [mm]	Albero	D1 [mm]
GU04HBA	12	22	62	18	upon request			30	4	13,8	10	10	11 x 14 Z6	22
GU1HBA	16	25	74	21				40	5	18,3	12	12	13 x 16 Z6	26
GU3HBA	20	32	86	24				40	6	22,8	16	16	16 x 20 Z6	32
GU5HBA	25	42	108	31				45	8	28,3	20	20	21 x 25 Z6	42
GU6HBA	30	50	132	38				45	8	33,3	25	25	26 x 32 Z6	52
GU8HBA	40	70	166	47				70	12	43,3	••	••	36 x 42 Z8	70

•• = upon request

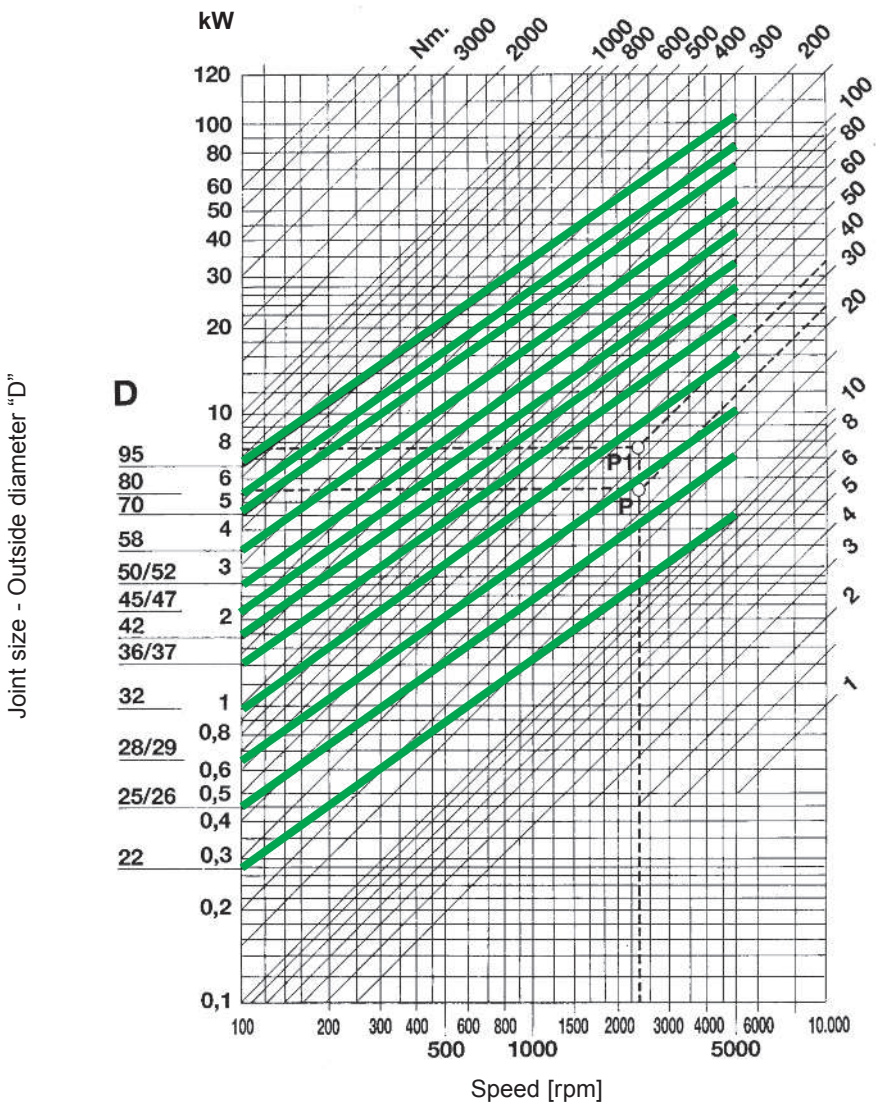
Selecting criteria

Matching one single joint with two shafts (of which the driving one is rotating at a constant speed), it forms an angle which causes a periodic variation of the driven shaft, exactly four fluctuations per revolution.
The difference between the maximum and the minimum speed of the driven shaft depends on the angle formed by the two shafts. The difference grows when increasing of the angle α.
To have a homokinetic transmission, you have to fit either two opposite single joints (paying attention that the two central yokes lie on the same plaine and the angles are equal) or a double joint. The irregularity caused by the former articulation is cancelled by the latter. The overall length resulting from the coupling of the two single joints is even more reduced using a double joint. In other words, the double joint is to be considered the shortest homokinetic transmission.
For low speed applications (max 1.000 rpm) joint with plain bearings (rubbing bearings) are suggested: types E/EB. They are able to support shock loads, drive reserves, irregular runnings and relatively high torques. The working angles must be reduced in operation between 500 and 1.000 rpm.
For high rotation speeds, relatively low torques or wide angles, joints with needle roller bearings (type V - H) are preferred. They can reach 5.000 rpm always relating to the angle.

How to read diagrams
The joint capacity to transmit a regular torque at a constant load with no shocks for a more or less long period, mainly depends on the number of revolutions per minute and the inclination angle α of the two axes.
The following diagrams are based upon the criteria belon.
Each curve corresponds to the joint size (outside diameter D) and represents the torque that the joint can transmit depending upon speed and working angle α.
The diagrams can be directly read if angle α is 10°; for wider angles, torques are reduced, therefore the values are to be corrected using correction factors (F) relating to the angle shown in the table.

Note:
Diagrams' values are merely indicative. Each application has its own particular motion characteristics, such as: shock loads, motion reversals, connected masses, type of starting, presence of elastic joints, stops and starts, etc. We, therefore, suggest calling our technical department.

Diagram for joints
Series “H” - High Speed



Torque M_T in [Nm]

WORKING ANGLE “α”	5°	10°	15°	20°	25°	30°	35°	40°	45°
CORRECTION FACTOR “F”	1,25	1,00	0,90	0,80	0,70	0,50	0,40	0,30	0,25

Example

- Power: 5,5 kW
- rpm: 2300 min^{-1}
- With working angle α = 10°, Factor F = 1,00 (5,5 kW : 1,00 = 5,5 kW) we get point P and Torque M_T = 23 Nm corresponding to joint size D = 28/29 mm (type 05H, 1HB)
- With working angle α = 25°, Factor F = 0,70 (5,5 kW : 0,70 = 7,85 kW) we get point P1 and Torque M_T = 33 Nm corresponding to joint size D = 32 mm (type 1H, 3HB).

Consider that:

$$M_T = 9.550 \times \frac{\text{Power [kW]}}{\text{rpm [min}^{-1}\text{]}} \quad \text{[Nm]}$$

$$M_T = 7.020 \times \frac{\text{Power [CV]}}{\text{rpm [min}^{-1}\text{]}} \quad \text{[Nm]}$$