DISC COUPLINGS



DISC COUPLINGS

MAIN FEATURES

The disc coupling is of the continuous ring laminated metallic diaphragm type with blades in stainless steel. The torque is transmitted in pure tension through alternated driving and driven bolts on a common pitch circle diameter. The disc couplings assure the following basic advantage:

- *no lubrification*
- *no maintenance*
- *high rotation speeds*
- *low weight with high torque capacity*
- *strong construction*
- *permit axial, parallel and angular misalignment*
- *work in both rotation directions*
- *no torsional clearance with high torsional rigidity*
- *high and low temperature operation*
- *operation in adverse environmental conditions*
- *possibility to replace the element blades without displacement of coupled machines*

Disc couplings in the standard version are manufactured with stainless steel blades, bolts and bushes in high resistant steel and the other parts in carbon steel. The couplings are operational in a temperature range from -20°C to +250°C equipped with self-locking metallic nuts and from -20°C up to +100°C if equipped with nut with nylon insert.

Disc couplings are manufactured upon specific request:

- *in all stainless components to face specific corrosion problems*
- *in special steel for very low operational temperatures*
- *with hubs and spacers in titanium or aluminium alloys to reduce the weight and the inertia*
- *with spacer in composite to reduce the weight and to get very high lenght without intermediate bearing*
- *according with 94/9/CE (Atex) standards.*

TYPOLOGY

Disc couplings are designed and manufactured in different types to meet the requirements of the different end uses applications:

- The series HBSX-GCSX-HPSX-BE with double elements composed by two hubs, two element blades and one spacer allow angular, axial and parallel misalignment. The catalogue shows the max allowed values. The axial and parallel misalignments are the consequence of the angular misalignment and therefore inversally proportional, i.e. the increase of one value corresponds to the decrease of the other one. The values of axial thrust generate by the axial misalignment are available asking for to our technical office. Upon request the lenghts of the hubs and of the spacer may be modified.

- The series GCSX has the same features of the range HBSX with the only difference that the element blades are with unrivetted bushes. This range has been designed to improve the torque capacity with same size of the coupling.

- The series HBX-GCX-HPX with single element composed by two hubs and one element blades allow an angular and axial misalignment, but not parallel one. For this reason their use is subject to the perfect alignment between the driving and driven machines. Normally these couplings are used in double spaced with a shaft, in order to bring the transmission as for two elements.

- The series GCSTX-GCSX/CTFX are an alternative version of series GCSX and are disegned specifically fo the use in the cooling towers. For this end use, the spacer ends are protected by closed caps to avoid the access of water and vapours to prevent the internal oxydation. The size tables related to the couplings for cooling towers give the max spacer length for operating speeds till 1500 RPM. For higher speed requirements refer to our technical service.

- The series GCSTX-FC with spacer in composite designed for cooling towers, allows a weight reduction of about 70% with easy installation and permits to reach the spacer length up to six meters without bearings. The size tables related to the couplings for cooling towers give the max spacer length for operating speeds till 1500 RPM. For higher speed requirements refer to our technical service. A backstop device is equipable to these series of couplings on the motor side hub to assure one rotation direction only.

- The series HBSX/AH-GCSX/AH with adapter and oversized hubs allow to get hubs with bigger size bores. This particular configuration allows to effect the balancing operation of the assembled adapters, element blades and spacer without removing them, which assure to obtain a very high grade of balancing repeteability.

- The series HBSX/RH with reversed hubs and with the spacer divided in two halfs is designed to replace the commonly commercialized gear couplings with disc couplings perfectly interchangeable in operational and size aspects with the advantage above mentioned. With this range of coupling it is possible to replace the gear couplings also on already operating machines without changing the position of the driving and driven machines.

FISATECH

SELECTION

The proper size selection of couplings depends by several factors. First of all the choice have to be done for a coupling suitable to transmit the maximum torque necessary to suit the nominal power (installed power) of the driving machine assuming that it will be higher than the driven machine power (absorbed power). After having determined the power (HP or KW) to be transmitted as well as the related operating speed (RPM) and the suitable service factor (Fs) it is possible to select the coupling with the use of the formulas here below.
It is also necessary to check that the shaft diameters of the driving and driven machines are lower than the max allowed bore of the coupling (see Table A).

Selection of coupling based on power:

$$Power = \frac{HP \text{ or } KW}{RPM} \times Fs$$

Selection of coupling based on torque:

$$Torque\ (Nm) = \frac{HP \times 7025 \text{ or } KW \times 9550}{RPM} \times Fs$$

The couplings included in this catalogue withstand a start up, or occasional overload torque, equal to 1,5 times the nominal torque and a short circuit torque equal to 3 times the nominal torque. For all applications it is foreseen a service factor as shown on the table C (such table gives service factor approximate values corresponding to the main applications).

BALANCING

For couplings with finished bores or welded spacer it is carried out upon request the dinamic balancing, grade G 6.3 ISO 1940 unless otherwise required. It is anyway nacesary to determine if the balancing has to be realized with or without key way. The balancing is done with a shaft passing through the coupling and blocked in the bores of the hubs or with separate components. To obtain an high balancing, repeteability grade is advisable use the range with adapter (AH pag. 10÷22). Considering that, due to the assembly tolerance, it is not possible to grant the assembled unit driving machine/coupling/driven machine balancing tolerance within the established grade, manufacturer has developped and experienced a specific procedure to permit the balancing on site of the disc couplings by fitting up grub screws on specific holes realized during the coupling manufacture. This solution is specifically used with high speed couplings. Consequently to the high machining accuracy in the manufacture, medium speed couplings do not require balancing unless for exceptionally heavy couplings. Normally the disc couplings with diameter till 100 mm at 4500 RPM, with diameter from 100 to 200 mm at 3000 RPM, with diameter from 200 to 500 mm at 1500 RPM, are manufactured and delivered without balancing.

SAFETY ADVICE

The couplings are manufactured according to the up to date technical know-how and supplied for safe operation. Modifications non authorised by manufaturer , that can compromise the working safety, are not permitted. The couplings must be employed only within the limit condition of the technical supply specification and respecting the safety running rules.

FISATECH

QUALITY

All products are manufactured and supplied subject to Quality Assurance procedure certified by Lloyd Register according to international standards UNI EN ISO 9001:2000. Couplings can be also manufactured according to the directive ATEX 94/9/CE.

TAB. C

Primary Service Factors	***Steam or gas turbine***	***Steam engines or water turbines***	***Diesel Engines***
Constant Torque *Centrifugal pumps* *Light conveyors* *Alternators* *Light fans*	**1,0**	**1,5**	**3,0**
Slight torque fluctuations *Machine tools* *Screw compressors* *Screw pumps* *Liquid ring compressors* *Rotary dryers*	**1,5**	**2,0**	**3,0**
Substantial torque fluctuation *Reciprocating pumps* *Low viscosity mixers* *Cranes* *Winches*	**2,0**	**2,5**	**4,0**
Exceptionally high torque fluctuations *Rotary presses* *Reciprocating compressors* *High viscosity mixers* *Marine propellers*	**3,0**	**3,5**	**5,0**

ATTENTION! For a correct working, the couplings have to be chosen according to the data given on the above tables with a service factor suitable for the application and the working surroundings. In case of working condition modification (i.e. power, RPM, start-up frequency, modification to the driving and driven machines, coupling proximity temperature) it is necessary to verify the coupling choice.

FISATECH

Ranges
EBS1 - EBS1.R

MICROGIUNTI
MICROCOUPLINGS

FEATURES

Nominal rating transmissible =
HP/n 1' 0,0014
kw/n 1' 0,0010

Nominal torque =
Nm; 10

Max angular misalignment = 1° each element

Max parallel misalignment = 0,4 mm

Max axial deflection = ± 1,5 mm

Max speed = 35000 RPM

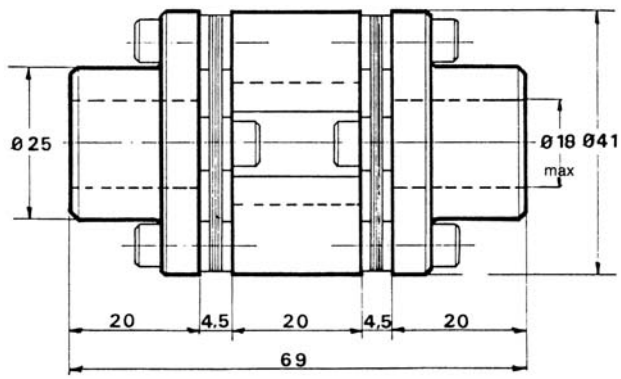
Type EBS1 = Weight Kg. 0,450 inertia PD² Kgm² 0,00049

Type EBS1R = Weight Kg. 0,380 inertia PD² Kgm² 0,00036

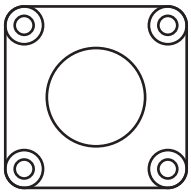
EBS1



EBS1.R



FISATECH

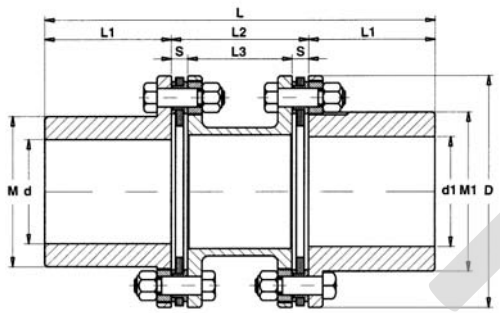


Ranges
HBSX-4

4 BOLTS WITH SPACER
*From **HP 0,003** to **HP 0,7** at **1 RPM***

Max angular misalignment = 1° each element

Max parallel misalignment = 0.017 x (L3 + S)

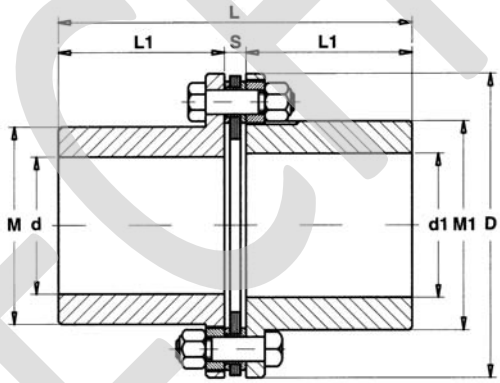


DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer lengths can be modified

Ranges
HBX-4

4 BOLTS WITHOUT SPACER
*From **HP 0,003** to **HP 0,7** at **1 RPM***

Max angular misalignment = 1°



DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer lengths can be modified

FISATECH

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM* HP/n	KW/n	*Nominal Torque* Nm	D mm	HBSX L mm	HBX L mm	d: d1 min mm	d max mm	d1 max mm	L1 mm	S mm	L2 mm	L3 mm	M mm	M1 mm
3-4	0,003	0,002	20	67	102	56	13	23	26	25	6	52	40	33	38
6-4	0,006	0,004	40	81	135	86,5	13	32	35	40	6,5	55	42	46	51
18-4	0,018	0,013	130	104	175	108,5	13	42	48	50	8,5	75	58	61	68
35-4	0,035	0,026	250	126	200	130	17	50	55	60	10	80	60	72	81
60-4	0,060	0,044	420	143	245	151,5	17	58	63	70	11,5	105	82	82	89
100-4	0,100	0,074	700	168	290	194,5	17	75	80	90	14,5	110	81	105	115
140-4	0,142	0,105	1000	194	340	216	20	85	94	100	16	140	108	118	132
180-4	0,185	0,136	1300	214	395	247	20	95	105	115	17	165	131	137	151
330-4	0,327	0,241	2300	246	430	279,5	20	110	120	130	19,5	170	131	156	170
700-4	0,697	0,513	4900	275	495	307,5	20	120	125	140	27,5	215	160	168	180

Technical features
Ranges HBSX-4 • HBX-4

TAB. B

COUPLING SIZE	**3-4**	**6-4**	**18-4**	**35-4**	**60-4**	**100-4**	**140-4**	**180-4**	**330-4**	**700-4**
Weight HBSX kg.	0,9	2,3	4,7	8,3	12,6	21,6	32,6	45,5	67,0	96,5
Weight HBX kg.	0,6	1,6	3,4	5,9	8,9	16,6	24,5	35,5	52,5	71,0
Inertia PD² HBSX kgm²	0,016	0,0061	0,0196	0,0528	0,1024	0,2312	0,4741	0,7788	1,5355	2,8746
Inertia PD² HBX kgm²	0,0009	0,0036	0,0118	0,0315	0,0603	0,1497	0,2995	0,5180	1,0137	1,7697
Torsional Stiffness HBSX Nm/rad x 10⁶	0,1668	0,0324	0,0932	0,1815	0,2943	0,5062	0,7112	0,8770	1,5647	3,2196
Torsional Stiffness HBX Nm/rad x 10⁶	0,4611	0,0706	0,2060	0,4228	0,6995	1,1154	1,5902	1,9532	3,5100	8,6897
Nuts tightenning torque of element blades Nm	5	5	10	23	45	45	80	80	180	500
Axial deflection HBSX +/- mm	2,0	2,8	3,6	4,2	4,8	6,0	7,0	8,0	9,0	10,0
Axial deflection HBX +/- mm	1,0	1,4	1,8	2,1	2,4	3,0	3,5	4,0	4,5	5,0
Max speed RPM	30000	27500	19500	14600	14000	10500	8500	8400	6300	6100

NOTES:
A) Weight and inertia are calculated with steel hubs, standard dimensions and with min bore "d".
B) Torsional stiffness is given between hub flanges for standard dimensions (spacer, elements blades, bolts, adaptors, etc.).
C) Allowable axial misalignment is related to parallel misalignment and viceversa.
D) Before bolts tightening to lock the element blades it is advisable to apply a light oil film on the related threads.
E) Max speed (RPM) are calculated with the main components (hubs, adaptors, spacers, etc.) manufactured in carbon steel and with standard dimensions. For higher operational speeds alternative materials or special designs are available.

Figures and dimensions included in this catalogue may be varied without prior advice.

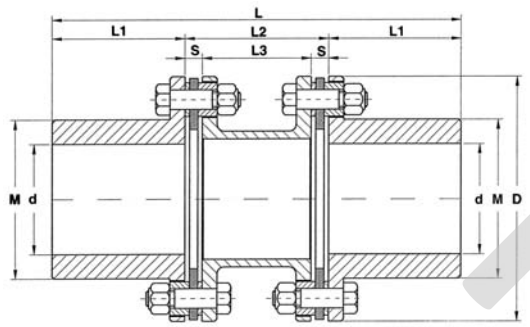
FISATECH

Ranges
GCSX-4

4 BOLTS WITH SPACER
*From **HP 0,009** to **HP 0,8** at **1 RPM***

Max angular misalignment = 1° each element

Max parallel misalignment = 0.017 x (L3 + S)

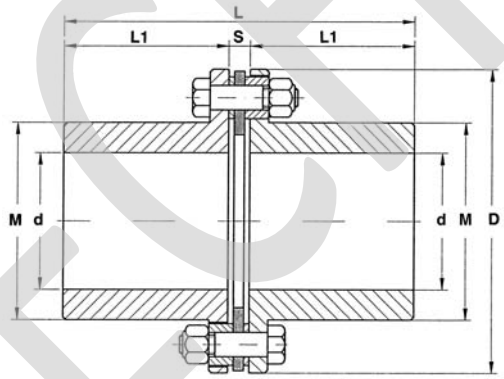


DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer lengths can be modified

Ranges
GCX-4

4 BOLTS WITHOUT SPACER
*From **HP 0,009** to **HP 0,8** at **1 RPM***

Max angular misalignment = 1°



DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer lengths can be modified

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM* HP/n	KW/n	*Nominal Torque* Nm	D mm	GCSX L mm	GCX L mm	d min mm	d max mm	L1 mm	S mm	L2 mm	L3 mm	M mm
9-4	0,009	0,007	60	67	105	57,5	13	23	25	7,5	55	40	33
13-4	0,013	0,009	90	81	136	87	13	32	40	7	56	42	46
26-4	0,026	0,019	180	93	155	98	13	35	45	8	65	49	50
36-4	0,036	0,026	250	104	175	108,5	13	42	50	8,5	75	58	61
80-4	0,080	0,059	560	126	203	131,5	17	50	60	11,5	83	60	72
125-4	0,128	0,094	900	143	245	151,5	17	58	70	11,5	105	82	82
160-4	0,157	0,119	1100	168	288	193,5	17	75	90	13,5	108	81	105
255-4	0,256	0,188	1800	194	339	215,5	20	85	100	15,5	139	108	118
345-4	0,342	0,251	2400	214	393	246	20	95	115	16	163	131	137
560-4	0,555	0,408	3900	246	429	279	20	110	130	19	169	131	156
800-4	0,797	0,586	5600	275	494	307	20	120	140	27	214	160	168

FISATECH

Technical features
Ranges GCSX-4 • GCX-4

TAB. B

COUPLING SIZE	**9-4**	**13-4**	**26-4**	**36-4**	**80-4**	**125-4**	**160-4**	**255-4**	**345-4**	**560-4**	**800-4**
Weight GCSX kg.	1,0	2,2	3,3	4,6	8,3	12,5	21,0	32,0	44	65,0	95,0
Weight GCX kg.	0,6	1,5	2,2	3,2	5,7	8,5	16,0	23,5	33,5	50,0	69,0
Inertia PD^2 GCSX kgm^2	0,0018	0,0060	0,0116	0,0195	0,0534	0,1029	0,2225	0,4624	0,7496	1,4880	2,8312
Inertia PD^2 GCX kgm^2	0,0010	0,0034	0,0064	0,0113	0,0306	0,0590	0,1390	0,2794	0,4777	0,9482	1,7029
Torsional Stiffness GCSX Nm/rad x 10^6	0,3139	0,0549	0,0814	0,1275	0,2521	0,4140	0,5062	0,8466	1,1321	1,6785	2,9558
Torsional Stiffness GCX Nm/rad x 10^6	0,0736	0,1128	0,2394	0,3178	0,6877	1,0919	1,3803	2,2494	2,8204	4,7382	9,9277
Nuts tightenning torque of element blades Nm	10	10	23	23	45	80	80	180	180	270	650
Axial deflection GCSX +/- mm	2,0	2,8	3,2	3,6	4,2	4,8	6,0	7,0	8,0	9,0	10,0
Axial deflection GCX +/- mm	1,0	1,4	1,6	1,8	2,1	2,4	3,0	3,5	4,0	4,5	5,0
Max speed RPM	5000	4500	4300	4200	4000	3800	3600	3000	3000	3000	3000

NOTES:
A) Weight and inertia are calculated with steel hubs, standard dimensions and with min bore "d".
B) Torsional stiffness is given between hub flanges for standard dimensions (spacer, elements blades, bolts, adaptors, etc.).
C) Allowable axial misalignment is related to parallel misalignment and viceversa.
D) Before bolts tightening to lock the element blades it is advisable to apply a light oil film on the related threads.
E) Max speed (RPM) are calculated with the main components (hubs, adaptors, spacers, etc.) manufactured in carbon steel and with standard dimensions. For higher operational speeds alternative materials or special designs are available.

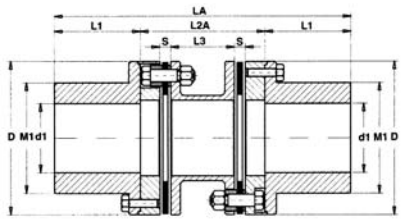
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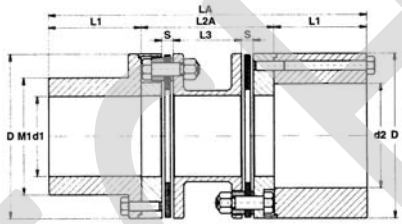
Ranges GCSX-4-AH

4 BOLTS WITH SPACER AND ADAPTORS
*From **HP 0,009** to **HP 0,34** at **1 RPM***

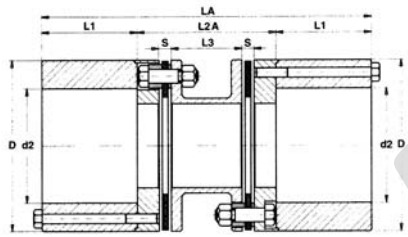
Ranges GCSX-AH



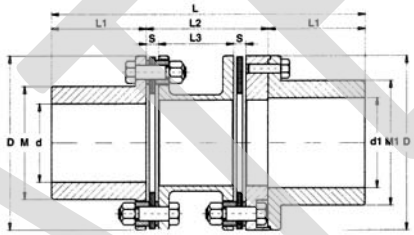
Ranges GCSX-AH-ALH



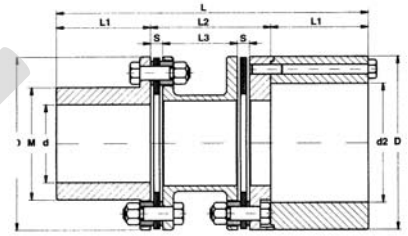
Ranges GCSX-ALH



Ranges GCSX-AH-M



Ranges GCSX-ALH-M



Max angular misalignment = 1° each element

Max parallel misalignment = 0.017 x (L3 + S)

DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer lenghts can be modified

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM* HP/n	KW/n	*Nominal Torque* Nm	D mm	L mm	LA mm	d:d1:d2 min mm	d max mm	d1 max mm	d2 max mm	L1 mm	S mm	L2 mm	L2A mm	L3 mm	M mm	M1 mm
9-4	0,009	0,007	60	67	120	135	13	23	28	40	25	7,5	70	85	40	33	39
13-4	0,013	0,009	90	81	151	166	13	32	38	55	40	7,0	71	86	42	46	53
26-4	0,026	0,019	180	93	172	189	13	35	46	65	45	8,0	82	99	49	50	65
36-4	0,036	0,026	250	104	192	209	13	42	53	75	50	8,5	92	109	58	61	75
80-4	0,080	0,059	560	126	226	249	17	50	65	90	60	11,5	106	129	60	72	90
125-4	0,128	0,094	900	143	271	297	17	58	70	100	70	11,5	131	157	82	82	100
160-4	0,157	0,119	1100	168	315	342	17	75	90	120	90	13,5	135	162	81	105	126
255-4	0,256	0,188	1800	194	372	405	20	85	100	135	100	15,5	172	205	108	118	144
345-4	0,342	0,251	2400	214	426	459	20	95	115	150	115	16,0	196	229	131	137	164

FISATECH

Technical features
Ranges GCSX-4-AH

TAB. B

COUPLING SIZE	**9-4**	**13-4**	**26-4**	**36-4**	**80-4**	**125-4**	**160-4**	**255-4**	**345-4**
Weight GCSX-AH kg.	1,7	3,6	5,4	7,2	13,0	19,5	32,0	49,0	66,0
Weight GCSX-AH-ALH kg.	1,4	2,8	4,3	5,8	10,6	15,7	26,0	40,0	54,0
Weight GCSX-ALH kg.	2,5	4,9	7,4	9,8	17,8	26,5	43,0	66,0	65,0
Weight GCSX-AH-M kg.	1,8	3,3	5,3	7,1	13,0	19,0	31,0	48,0	88,0
Weight GCSX-ALH-M kg.	2,1	4,1	6,4	8,5	15,4	22,6	27,0	57,0	77,0
Inertia PD^2 GCSX-AH kgm^2	0,0038	0,0117	0,0227	0,0381	0,1029	0,1977	0,4391	0,9026	1,4657
Inertia PD^2 GCSX-AH-ALH kgm^2	0,0028	0,0082	0,0162	0,0268	0,0738	0,1450	0,3064	0,6406	1,0363
Inertia PD^2 GCSX-ALH kgm^2	0,0058	0,0174	0,0338	0,0567	0,1524	0,2925	0,6557	1,3428	2,1818
Inertia PD^2 GCSX-AH-M kgm^2	0,0038	0,0104	0,0208	0,0341	0,0942	0,1717	0,3903	0,8188	1,3230
Inertia PD^2 GCSX-ALH-M kgm^2	0,0048	0,0139	0,0273	0,0454	0,1233	0,2348	0,5230	1,0808	1,7524
Torsional Stiffness GCSX-AH • GCSX-AH-ALH • GCSX-ALH Nm/rad x 10^6	0,0314	0,0549	0,0804	0,1265	0,2492	0,4091	0,5023	0,8388	1,0546
Torsional Stiffness GCSX-AH-M • GCSX-ALH-M Nm/rad x 10^6	0,0304	0,0540	0,0795	0,1256	0,2472	0,4042	0,4983	0,8309	1,1125
Nuts tightenning torque of element blades Nm	10	10	23	23	45	80	80	180	180
Nuts tightenning torque of adaptator Nm	10	10	10	10	25	50	50	85	85
Axial deflection +/- mm	2	2,8	3,2	3,6	4,2	4,8	5,0	7,0	8,0
Max speed RPM	5000	4500	4300	4200	4000	3800	3600	3000	3000

NOTES:
A) Weight and inertia are calculated with steel hubs, standard dimensions and with min bore "d".
B) Torsional stiffness is given between hub flanges for standard dimensions (spacer, elements blades, bolts, adaptors, etc.).
C) Allowable axial misalignment is related to parallel misalignment and viceversa.
D) Before bolts tightening to lock the element blades it is advisable to apply a light oil film on the related threads.
E) Max speed (RPM) are calculated with the main components (hubs, adaptors, spacers, etc.) manufactured in carbon steel and with standard dimensions. For higher operational speeds alternative materials or special designs are available.

Figures and dimensions included in this catalogue may be varied without prior advice.

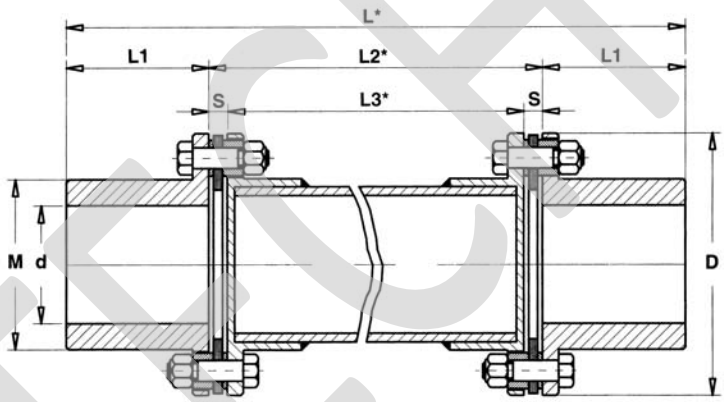
FISATECH

Ranges
GCSTX-4

WITH COMBINED SPACER IN STEEL
*From **HP 0,08** to **HP 0,8** at **1 RPM***

Max angular misalignment = 1° each element

Max parallel misalignment = 0.017 x (L3 + S)



** Allowable dimensions for operational speeds not higher than 1500 RPM*

DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer lenghts can be modified

FISATECH

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM*		*Nominal Torque*	D	L	d min	d max	L1	S	L2	L3	M
	HP/n	KW/n	Nm	mm	mm	mm	mm	mm	mm	mm	mm	mm
80-4	0,080	0,059	560	126	2100	17	50	60	11,5	1980	1957	72
125-4	0,128	0,094	900	143	2630	17	58	70	11,5	2490	2467	82
160-4	0,157	0,119	1100	168	2675	17	75	90	13,5	2495	2468	105
255-4	0,256	0,188	1800	194	3040	20	85	100	15,5	2840	2809	118
345-4	0,342	0,251	2400	214	3410	20	95	115	16	3180	3148	137
560-4	0,555	0,408	3900	246	3440	20	110	130	19	3180	3142	156
800-4	0,797	0,586	5600	275	3460	20	120	140	27	3180	3126	168

Technical features
Ranges GCSTX-4

TAB. B

COUPLING SIZE	**80-4**	**125-4**	**160-4**	**255-4**	**345-4**	**560-4**	**800-4**
Weight GCSTX-4 kg.	20,0	34	42	65	100	122	150
Inertia PD² GCSTX-4 kgm²	0,0779	0,2033	0,3196	0,7400	1,6074	2,2989	3,3917
Torsional Stiffness GCSTX-4 Nm/rad x 10⁶	10,987	30,117	31,000	64,452	174,716	194,729	217,978
Nuts tightenning torque of element blades Nm	45	80	80	180	180	270	650
Axial deflection +/- mm	4,2	4,8	6,2	7,0	8,0	9,0	10,0

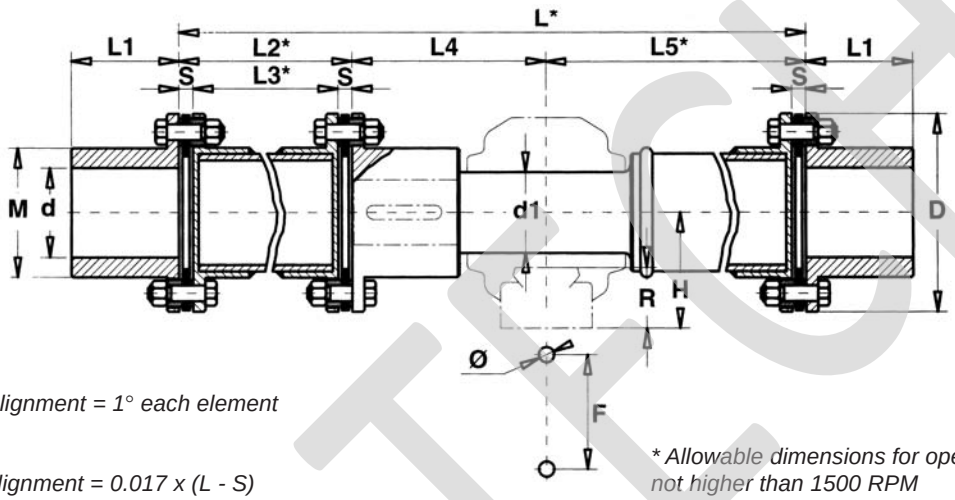
NOTES:
A) Weight and inertia are calculated with steel hubs, standard dimensions and with min bore "d".
B) Torsional stiffness is given between hub flanges for standard dimensions (spacer, elements blades, bolts, adaptors, etc.).
C) Allowable axial misalignment is related to parallel misalignment and viceversa.
D) Before bolts tightening to lock the element blades it is advisable to apply a light oil film on the related threads.
E) Max speed (RPM) are calculated with the main components (hubs, adaptors, spacers, etc.) manufactured in carbon steel and with standard dimensions. For higher operational speeds alternative materials or special designs are available.

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FISATECH

Ranges
GCSX/CTFX-4

WITH COMBINED SPACER IN STEEL AND CENTRAL BEARING
*From **HP 0,08** to **HP 0,8** at **1 RPM***



Max angular misalignment = 1° each element

Max parallel misalignment = 0.017 x (L - S)

** Allowable dimensions for operational speeds not higher than 1500 RPM*

DIMENSIONS REFERRED TO STANDARD VERSION - Hubs and spacer lenghts can be modified

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM*		*Nominal Torque*	D	L	d min	d max	L1	S	L2	L3	L4	L5	M
	HP/n	KW/n	Nm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
80-4	0,080	0,059	560	126	4200	17	50	60	11,5	1980	1957	120	2100	72
125-4	0,128	0,094	900	143	5245	17	58	70	11,5	2490	2467	130	2625	82
160-4	0,157	0,119	1100	168	5395	17	75	85	13,5	2495	2468	150	2640	105
255-4	0,256	0,188	1800	194	6000	20	85	100	15,5	2840	2809	170	2990	118
345-4	0,342	0,251	2400	214	6695	20	95	115	16	3180	3148	180	3335	137
560-4	0,555	0,408	3900	246	6785	20	110	130	19	3180	3142	220	3385	156
800-4	0,797	0,586	5600	275	6800	20	120	140	27	3180	3126	235	3385	168

TYPE	Complete S.K.F. bearing	d1 mm	H mm	F mm	Ø mm	R mm
80-4	SNH 511 TA + 1211 K + H 211	50	70	210	16 M	27
125-4	SNH 512 TA + 1212 K + H 212	55	70	210	16 M	30
160-4	SNH 513 TA + 1213 K + H 213	60	80	230	16 M	30
255-4	SNH 516 TA + 1216 K + H 216	70	95	260	20 M	32
345-4	SNH 517 TA + 1217 K + H 217	75	95	260	20 M	32
560-4	SNH 520 TA + 1220 K + H 220	90	112	320	24 M	40
800-4	SNH 522 TA + 1222 K + H 222	100	125	350	24 M	45

FISATECH

Technical features
Ranges GCSX/CTFX-4

TAB. B

COUPLING SIZE	**80-4**	**125-4**	**160-4**	**255-4**	**345-4**	**560-4**	**800-4**
Weight GCSX/CTFX-4 kg.	26	44	57	88	134	172	217
Inertia PD² GCSX/CTFX-4 kgm²	0,1051	0,2620	0,4387	0,9927	2,0430	3,1226	5,5667
Torsional Stiffness GCSX/CTFX-4XNm/rad x 10⁶	5,386	14,833	15,078	31,784	91,429	98,689	103,986
Nuts tightenning torque of element blades Nm	45	80	80	180	180	270	650
Axial deflection +/- mm	6,3	7,2	9,3	10,5	12,0	13,5	15

NOTES:
A) Weight and inertia are calculated with steel hubs, standard dimensions and with min bore "d".
B) Torsional stiffness is given between hub flanges for standard dimensions (spacer, elements blades, bolts, adaptors, etc.).
C) Allowable axial misalignment is related to parallel misalignment and viceversa.
D) Before bolts tightening to lock the element blades it is advisable to apply a light oil film on the related threads.
E) Max speed (RPM) are calculated with the main components (hubs, adaptors, spacers, etc.) manufactured in carbon steel and with standard dimensions. For higher operational speeds alternative materials or special designs are available.

Figures and dimensions included in this catalogue may be varied without prior advice.

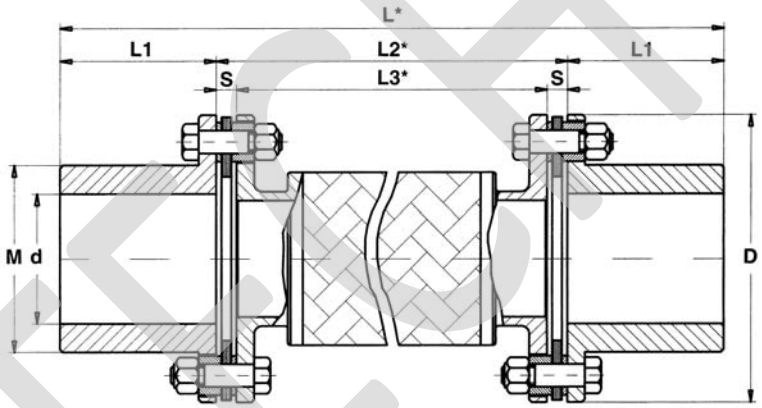
FISATECH

Ranges
GCSTX-4-FC

WITH COMBINED SPACER IN STEEL/COMPOSITE
*From **HP 0,08** to **HP 0,34** at **1 RPM***

Max angular misalignment = 1° each element

Max parallel misalignment = 0.017 x (L3 + S)



** Allowable dimensions for operational speeds not higher than 1500 RPM*

DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer lengths can be modified

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM*		*Nominal Torque*	D	L	d min	d max	L1	S	L2	L3	M
	HP/n	KW/n	Nm	mm	mm	mm	mm	mm	mm	mm	mm	mm
80-4	0,080	0,059	560	126	3420	17	50	60	11,5	3300	3277	72
125-4	0,128	0,094	900	143	4040	17	58	70	11,5	3900	3877	82
160-4	0,157	0,119	1100	168	4080	17	75	90	13,5	3900	3873	105
255-4	0,256	0,188	1800	194	4500	20	85	100	15,5	4300	4269	118
345-4	0,342	0,251	2400	214	4930	20	95	115	16	4700	4668	137

FISATECH

Technical features
Ranges GCSTX-4-FC

TAB. B

COUPLING SIZE	**80-4**	**125-4**	**160-4**	**255-4**	**345-4**
Weight GCSTX-4-FC kg.	14,5	22	30	45	60
Inertia PD² GCSTX-4-FC kgm²	0,095	0,220	0,340	0,714	1,227
Nuts tightenning torque of element blades Nm	45	80	80	180	180
Axial deflection +/- mm	4,2	4,8	6,2	7,0	8,0

NOTES:
A) Weight and inertia are calculated with steel hubs, standard dimensions and with min bore "d".
B) Torsional stiffness is given between hub flanges for standard dimensions (spacer, elements blades, bolts, adaptors, etc.).
C) Allowable axial misalignment is related to parallel misalignment and viceversa.
D) Before bolts tightening to lock the element blades it is advisable to apply a light oil film on the related threads.
E) Max speed (RPM) are calculated with the main components (hubs, adaptors, spacers, etc.) manufactured in carbon steel and with standard dimensions. For higher operational speeds alternative materials or special designs are available.

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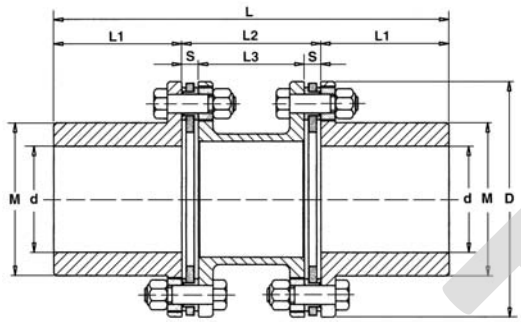
FISATECH

Ranges
HPSX-6

6 BOLTS WITH SPACER
*From **HP 40,08** to **HP 1,3** at **1 RPM***

Max angular misalignment = 0° 45' each element

Max parallel misalignment = 0.012 x (L3 + S)

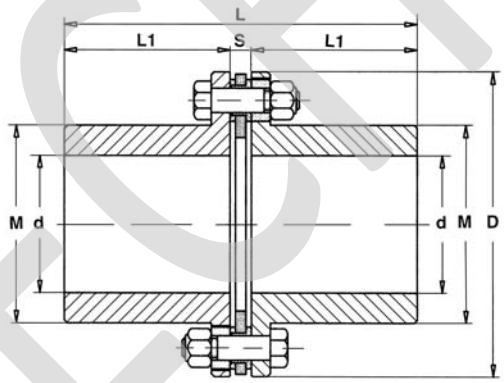


DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer length can be modified

Ranges
HPX-6

6 BOLTS WITHOUT SPACER
*From **HP 40,08** to **HP 1,3** at **1 RPM***

Max angular misalignment = 0° 45'



DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer length can be modified

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM*		*Nominal Torque*	D	HPSX L	HPX L	d min	d max	L1	S	L2	L3	M
	HP/n	KW/n	Nm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
80-6	0,080	0,059	560	119	175	120,5	17	52	55	10,5	65	44	74
130-6	0,128	0,094	900	137	205	141	17	56	65	11,0	75	53	81
240-6	0,242	0,178	1700	161	240	161,5	17	68	75	11,5	90	67	97
470-6	0,470	0,345	3300	180	270	173,5	20	72	80	13,5	110	83	104
860-6	0,854	0,628	6000	212	310	205,5	20	85	95	15,5	120	89	124
130-6	1,295	0,952	9100	244	350	236,5	20	100	110	16,5	130	97	143

FISATECH

Technical features
Ranges HPSX-6 • HPX-6

TAB. B

COUPLING SIZE	80-6	130-6	240-6	470-6	860-6	1300-6
Weight HPSX kg.	6,2	9,5	15,5	22,8	40,0	50,0
Weight HPX kg.	4,6	7,0	11,5	15,8	26,0	41,0
Inertia PD² HPSX kgm²	0,0302	0,0686	0,1525	0,2969	0,6567	1,3589
Inertia PD² HPX kgm²	0,0181	0,0416	0,0935	0,1715	0,3846	0,7959
Torsional Stiffness HPSX Nm/rad x 10⁶	0,4415	0,6769	0,9221	1,5794	3,0803	4,9442
Torsional Stiffness GHPX Nm/rad x 10⁶	1,2753	2,0307	3,5316	6,9062	12,753	19,423
Nuts tightenning torque of element blades Nm	23	45	80	180	270	500
Axial deflection HPSX +/- mm	3	3,4	3,8	4,2	4,6	5,4
Axial deflection HPX +/- mm	1,5	1,7	1,9	2,1	2,3	2,7
Max speed RPM	18750	14000	12800	11600	9600	8250

NOTES:
A) Weight and inertia are calculated with steel hubs, standard dimensions and with min bore "d".
B) Torsional stiffness is given between hub flanges for standard dimensions (spacer, elements blades, bolts, adaptors, etc.).
C) Allowable axial misalignment is related to parallel misalignment and viceversa.
D) Before bolts tightening to lock the element blades it is advisable to apply a light oil film on the related threads.
E) Max speed (RPM) are calculated with the main components (hubs, adaptors, spacers, etc.) manufactured in carbon steel and with standard dimensions. For higher operational speeds alternative materials or special designs are available.

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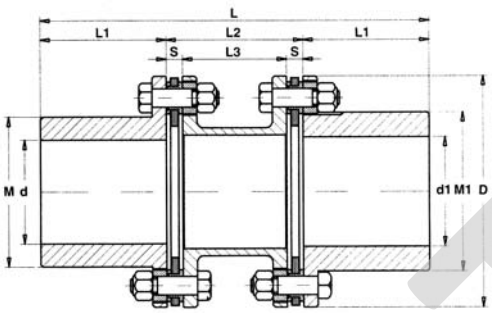
FISATECH

Ranges
HBSX-8

8 BOLTS WITH SPACER
*From **HP 0,54** to **HP 28** at **1 RPM***

Max angular misalignment = 0° 30' each element

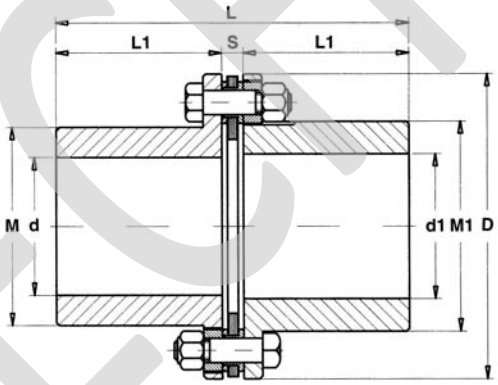
Max parallel misalignment = 0,0085 x (L3 + S)



Ranges
HBX-8

8 BOLTS WITHOUT SPACER
*From **HP 0,54** to **HP 28** at **1 RPM***

Max angular misalignment = 0° 30'



DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer length can be modified

DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer length can be modified

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM*		*Nominal Torque*	D	HBSX L	HBX L	d: d1 min	d max	d1 max	L1	S	L2	L3	M	M1
	HP/n	KW/n	Nm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
540-8	0,54	0,40	3800	214	335	232	25	95	105	110	12	115	91	138	150
1000-8	1,00	0,74	7000	246	370	253,5	25	110	115	120	13,5	130	103	155	170
1500-8	1,50	1,10	10500	275	405	267,5	25	120	125	125	17,5	155	120	170	182
2000-8	2,00	1,47	14000	275	415	269	25	120	125	125	19	165	127	170	182
2500-8	2,50	1,84	17500	308	475	309	258	135	145	145	19	185	147	193	208
3600-8	3,60	2,65	25300	346	530	351,5	25	150	165	165	21,5	200	157	218	235
5300-8	5,30	3,90	37300	375	585	384	25	165	180	180	24	225	177	238	255
7000-8	7,00	5,15	49200	410	645	418	25	180	195	195	28	255	199	258	276
9200-8	9,20	6,77	64600	445	680	439,5	25	190	205	205	29,5	270	211	272	296
11000-8	11,00	8,10	77300	470	710	471	25	205	220	220	31	270	208	297	322
13000-8	13,00	9,56	91300	510	775	521	25	225	245	245	31	285	223	320	350
15300-8	15,30	11,25	107500	555	835	571	25	255	270	270	31	295	233	360	383
18500-8	18,50	13,60	130000	587	880	602,5	25	265	285	285	32,5	310	245	378	402
24000-8	24,00	17,65	168600	630	945	635	25	275	300	300	35	345	275	400	428
28000-8	28,00	20,60	196700	655	990	666	25	290	315	315	36	360	288	420	448

FISATECH

Technical features
Ranges HBSX-8 • HBX-8

TAB. B

COUPLING SIZE	540-8	1000-8	1500-8	2000-8	2500-8	3600-8	5300-8	7000-8	9200-8	11000-8	13000-8	15300-8	18500-8	24000-8	28000-8
Weight HBSX kg.	42,2	59	82	85	126	179	239	306	385	354	592	763	905	1085	1113
Weight HBX kg.	33,5	47	62	63	94	136	178	228	280	342	448	588	696	830	960
Inertia PD^2 HBSX kgm^2	0,7152	1,3461	2,3639	2,4691	4,7640	8,5536	13,578	20,938	30,944	40,428	62,765	94,086	126,70	172,87	220,50
Inertia PD^2 HBX kgm^2	0,4862	0,9039	1,4914	1,5413	2,2980	5,4245	8,5006	13,027	18,865	25,490	39,590	60,826	81,126	110,16	139,87
Torsional Stiffness HBSX Nm/rad x 10^6	3,5316	6,1803	9,4176	10,301	13,930	18,639	24,917	29,528	37,769	51,306	64,256	75,341	93,587	108,11	127,24
Torsional Stiffness HBX Nm/rad x 10^6	11,281	20,797	36,297	47,872	60,723	82,600	120,07	143,02	252,11	227,69	270,55	315,19	380,23	491,38	567,21
Nuts tightenning torque of element blades Nm	80	180	380	500	650	950	1300	1700	2100	2100	3400	4200	5200	5200	6600
Axial deflection HBSX +/- mm	3,6	4,4	4,4	4,4	5,0	5,8	6,2	6,6	7,4	8,4	9,2	9,8	10,0	11,0	12,0
Axial deflection HBX +/- mm	1,8	2,2	2,2	2,2	2,5	2,9	3,1	3,3	3,7	4,2	4,6	4,9	5,0	5,5	6,0
Max speed RPM	8500	8300	7700	7700	6600	5600	5200	4700	4700	3900	3700	3500	3100	3100	2800

NOTES:
A) Weight and inertia are calculated with steel hubs, standard dimensions and with min bore "d".
B) Torsional stiffness is given between hub flanges for standard dimensions (spacer, elements blades, bolts, adaptors, etc.).
C) Allowable axial misalignment is related to parallel misalignment and viceversa.
D) Before bolts tightening to lock the element blades it is advisable to apply a light oil film on the related threads.
E) Max speed (RPM) are calculated with the main components (hubs, adaptors, spacers, etc.) manufactured in carbon steel and with standard dimensions. For higher operational speeds alternative materials or special designs are available.

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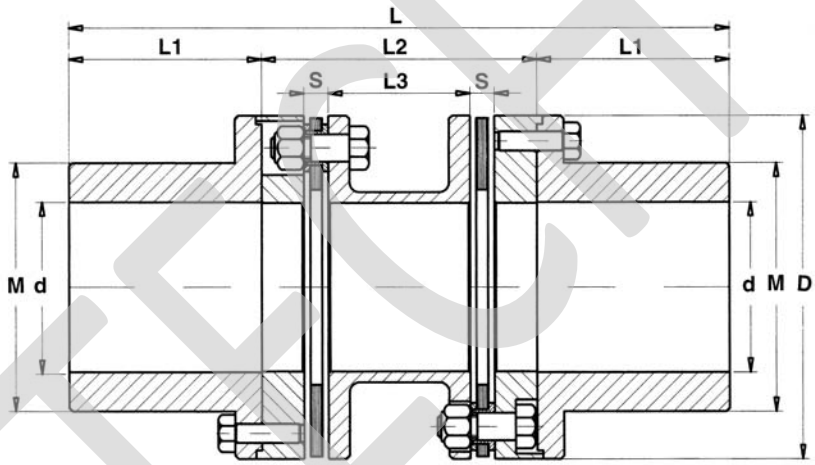
FISATECH

Ranges
HBSX-8-AH

8 BOLTS WITH SPACER AND ADAPTORS
*From **HP 0,65** to **HP 35** at **1 RPM***

Max angular misalignment = 0° 30' each element

Max parallel misalignment = 0.0085 x (L3 + S)



DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer length can be modified

TAB. A

SIZE	Nominal rating transmissible at 1 RPM		Nominal Torque	D	L	d min	d max	L1	S	L2	L3	M
	HP/n	KW/n	Nm	mm	mm	mm	mm	mm	mm	mm	mm	mm
650-8	0,65	0,48	4500	214	350	25	125	110	13	130	58	175
1260-8	1,25	0,92	8800	246	400	25	140	125	15	150	68	196
2010-8	2,01	1,47	14100	275	440	25	155	130	19	180	78	217
3160-8	3,16	2,32	22200	308	520	25	175	150	23,5	220	95	245
4630-8	4,63	3,40	32500	346	590	25	200	170	25	250	112	288
6470-8	6,47	4,76	45500	375	650	25	220	185	27	280	126	310
8770-8	8,77	6,44	61600	410	700	25	245	200	28	300	134	346
13850-8	13,85	10,18	97300	445	770	25	260	210	36	350	156	365
14840-8	14,84	10,90	104200	470	800	25	275	225	36	350	156	390
19700-8	19,70	14,48	138400	565	940	25	340	280	36	380	166	476
23700-8	23,70	17,42	166,500	595	990	25	355	290	37,5	410	181	498
35000-8	35,00	25,73	245900	665	1090	25	395	320	41	450	194	556

FISATECH

Technical features
Ranges HBSX-8-AH

TAB. B

COUPLING SIZE	650-8	1260-8	2010-8	3160-8	4630-8	6470-8	8770-8	13850-8	14840-8	19700-8	23700-8	35000-8
Weight HBSX-8-AH kg.	59,0	86,0	118	178	264	341	450	564	654	1147	1323	1854
Inertia PD² HBSX-8-AH kgm²	1,2108	2,2824	3,9683	7,7045	14,585	22,258	35,430	52,036	67,145	169,02	216,74	379,72
Torsional Stiffness HBSX-8-AH Nm/rad x 10⁶	4,0221	6,6708	10,497	16,088	22,171	30,607	38,651	50,423	61,705	118,70	138,32	200,12
Nuts tightenning torque of hub Nm	70	120	180	280	180	280	280	550	550	750	950	1400
Nuts tightenning torque of element blades Nm	80	180	380	650	950	1300	1700	2100	2100	4200	5200	8000
Axial deflection HBSX-8-AH +/- mm	3,6	4,4	4,4	5,0	5,8	6,2	6,6	7,4	8,4	9,8	10,0	12,0
Max speed RPM	8500	8300	7700	6600	5600	5200	4700	4200	3900	3500	3100	2800

NOTES:
A) Weight and inertia are calculated with steel hubs, standard dimensions and with min bore "d".
B) Torsional stiffness is given between hub flanges for standard dimensions (spacer, elements blades, bolts, adaptors, etc.).
C) Allowable axial misalignment is related to parallel misalignment and viceversa.
D) Before bolts tightening to lock the element blades it is advisable to apply a light oil film on the related threads.
E) Max speed (RPM) are calculated with the main components (hubs, adaptors, spacers, etc.) manufactured in carbon steel and with standard dimensions. For higher operational speeds alternative materials or special designs are available.

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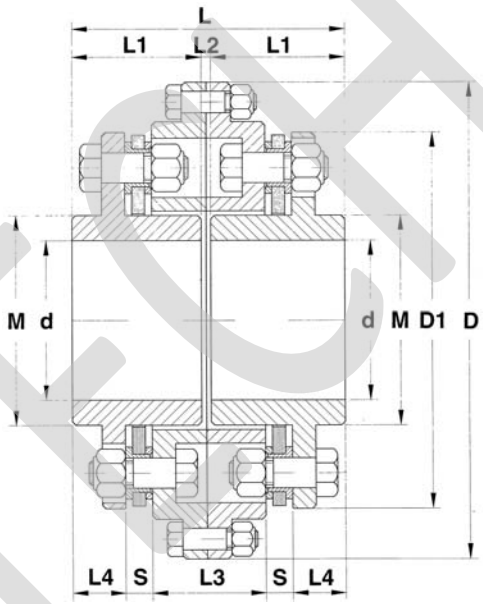
FISATECH

Ranges
HBSX-8-RH

8 BOLTS WITH REVERSED HUBS AND SPACER IN TWO HALFS
*From **HP 0,17** to **HP 19,7** at **1 RPM***

Max angular misalignment = 0° 30' each element

Max parallel misalignment = 0.0085 x (L3 + S)



DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer length can be modified

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM*		*Nominal Torque*	D	D1	L	d min	d max	L1	S	L2	L3	L4	M
	HP/n	KW/n	Nm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
170-8	0,17	0,12	1200	155	119	89	25	46	43	8,2	3	40	16,3	64
330-8	0,33	0,24	2300	185	148	103	25	62	50	9,5	3	48	18	86
650-8	0,65	0,48	4500	260	214	127	25	85	62	13	3	51	25	120
1260-8	1,25	0,82	8800	295	246	157	25	98	76	15	5	71	28	138
2010-8	2,01	1,47	14100	330	275	185	25	105	90	19	5	79	34	150
2700-8	2,70	1,98	19000	330	275	216	25	105	105	23	6	100	35	150
3160-8	3,16	2,32	22200	365	308	246	25	125	120	23,5	6	117	41	175
4630-8	4,63	3,40	32500	415	346	278	25	135	135	25	8	136	46	195
8770-8	8,77	6,44	61600	475	410	308	25	155	150	28	8	138	57	220
13850-8	13,85	10,13	97300	535	445	358	25	165	175	36	8	160	63	235
14840-8	14,34	10,90	104200	560	470	388	25	180	190	36	8	190	63	260
19700-8	19,70	14,48	138400	675	555	450	25	225	220	36	10	232	73	320

FISATECH

Technical features
Ranges HBSX-8-RH

TAB. B

COUPLING SIZE	170-8	330-8	650-8	1260-8	2010-8	2700-8	3160-8	4630-8	8770-8	13850-8	14840-8	19700-8
Weight HBSX-8-RH kg.	8,0	11,0	29,5	47,0	68,0	80,0	115	165	253	352	487	625
Inertia PD² HBSX-8-RH kgm²	0,0668	0,1383	0,7525	1,5263	2,7753	3,1936	5,6541	10,235	21,576	36,567	57,144	97,363
Torsional Stiffness HBSX-8-RH Nm/rad x 10⁶	1,2753	2,5506	5,2974	9,5157	16,285	20,111	25,997	35,610	63,078	81,227	97,511	174,81
Nuts tightenning torque of element blades Nm	23	23	45	45	80	80	80	180	180	380	380	500
Nuts tightenning torque of element blades Nm	23	45	80	180	380	500	650	950	1700	2100	2100	4200
Axial deflection HBSX-8-RH +/- mm	2,0	2,8	3,6	4,4	4,4	4,4	5,0	5,8	6,6	7,4	8,4	9,8
Max speed RPM	14000	10000	8500	8300	7700	7700	6600	5600	4700	4200	3900	3500

NOTES:
A) Weight and inertia are calculated with steel hubs, standard dimensions and with min bore "d".
B) Torsional stiffness is given between hub flanges for standard dimensions (spacer, elements blades, bolts, adaptors, etc.).
C) Allowable axial misalignment is related to parallel misalignment and viceversa.
D) Before bolts tightening to lock the element blades it is advisable to apply a light oil film on the related threads.
E) Max speed (RPM) are calculated with the main components (hubs, adaptors, spacers, etc.) manufactured in carbon steel and with standard dimensions. For higher operational speeds alternative materials or special designs are available.

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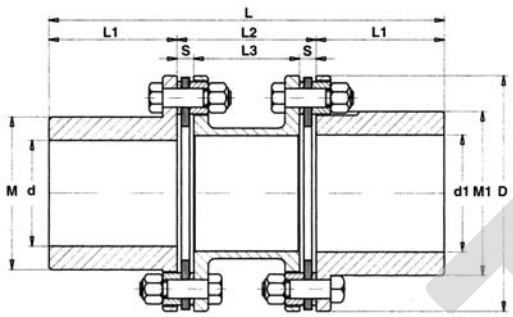
FISATECH

Ranges
GCSX-8

8 BOLTS WITH SPACER
*From **HP 0,87** to **HP 35** at **1 RPM***

Max angular misalignment = 0° 30' each element

Max parallel misalignment = 0,0085 x (L3 + S)

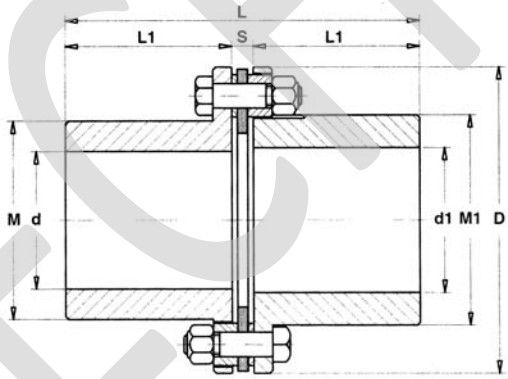


DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer length can be modified

Ranges
GCX-8

8 BOLTS WITHOUT SPACER
*From **HP 0,54** to **HP 28** at **1 RPM***

Max angular misalignment = 0° 30'



DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer length can be modified

TAB. A

SIZE	Nominal rating transmissible at 1 RPM		Nominal Torque	D	GCSX L	GCX L	d: d1 min	d max	d1 max	L1	S	L2	L3	M	M1
	HP/n	KW/n	Nm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
870-8	0,87	0,64	6100	211	355	245	25	95	100	115	15	125	95	137	145
1310-8	1,31	0,96	9200	240	400	275,5	25	110	115	130	15,5	140	109	159	168
2550-8	2,55	1,87	17900	269	450	292	25	112	125	135	22	180	136	163	177
3700-8	3,70	2,72	26000	308	505	334	25	130	142	155	24	195	147	188	203
5250-8	5,25	3,86	36900	346	570	387	258	150	160	180	27	210	156	213	230
7100-8	7,10	5,22	49900	375	620	418,5	25	160	175	195	28,5	230	173	230	252
8800-8	8,80	6,47	61800	410	680	450,5	25	170	190	210	30,5	260	199	250	272
10400-8	10,40	7,65	73000	440	725	481	25	185	205	225	31	275	213	270	292
12000-8	12,00	8,82	84300	466	765	522,5	25	205	220	245	32,5	275	210	295	318
14800-8	14,80	10,88	104000	510	830	573	25	225	245	270	33	290	224	328	351
19700-8	19,70	14,48	138400	555	900	636	25	245	265	300	36	300	228	360	384
23700-8	23,70	17,42	166500	587	950	667,5	25	260	280	315	37,5	320	245	378	404
29700-8	29,70	21,83	208700	618	1010	699,5	25	275	295	330	39,5	350	271	398	425
35000-8	35,00	25,73	245900	650	1055	731	25	285	310	345	41	365	283	413	445

FISATECH

Technical features
Ranges GCSX-8 • GCX-8

TAB. B

COUPLING SIZE	870-8	1310-8	2550-8	3700-8	5250-8	7100-8	8800-8	10400-8	12000-8	14800-8	19700-8	23700-8	29700-8	35000-8
Weight GCSX kg.	42,5	64,8	91	137	197	255	324	400	478	625	810	960	1130	1307
Weight GCX kg.	33,5	51,3	65	99	145	186	238	295	365	484	638	748	876	1005
Inertia PD² GCSX kgm²	0,7142	1,4397	2,5951	5,2112	9,3815	14,304	21,680	30,853	40,730	63,488	96,868	128,798	169,56	217,36
Inertia PD² GCX kgm²	0,4801	0,9708	1,5714	3,1697	5,8071	8,7742	13,314	19,021	26,066	41,330	64,105	84,257	110,22	139,95
Torsional Stiffness GCSX Nm/rad x 10⁶	4,5126	6,3765	11,576	17,854	24,427	26,193	37,572	43,556	55,917	73,477	98,296	118,21	132,14	161,18
Torsional Stiffness GCX Nm/rad x 10⁶	17,854	27,173	61,116	91,036	124,09	163,53	178,24	212,09	243,68	301,16	403,87	489,61	604,68	714,06
Nuts tightenning torque of element blades Nm	180	270	650	950	1300	1700	2100	2700	2700	3400	4200	5200	6600	8000
Axial deflection GCSX +/- mm	3,6	4,4	4,4	5,0	5,8	6,2	6,6	7,4	8,4	9,2	9,8	10,0	11,0	12,0
Axial deflection GCX +/- mm	1,8	2,2	2,2	2,5	2,9	3,1	3,3	3,7	4,2	4,6	4,9	5,0	5,5	6,0
Max speed RPM	3000	3000	3000	2500	2500	2500	2000	2000	2000	1500	1500	1500	1500	1500

NOTES:
A) Weight and inertia are calculated with steel hubs, standard dimensions and with min bore "d".
B) Torsional stiffness is given between hub flanges for standard dimensions (spacer, elements blades, bolts, adaptors, etc.).
C) Allowable axial misalignment is related to parallel misalignment and viceversa.
D) Before bolts tightening to lock the element blades it is advisable to apply a light oil film on the related threads.
E) Max speed (RPM) are calculated with the main components (hubs, adaptors, spacers, etc.) manufactured in carbon steel and with standard dimensions. For higher operational speeds alternative materials or special designs are available.

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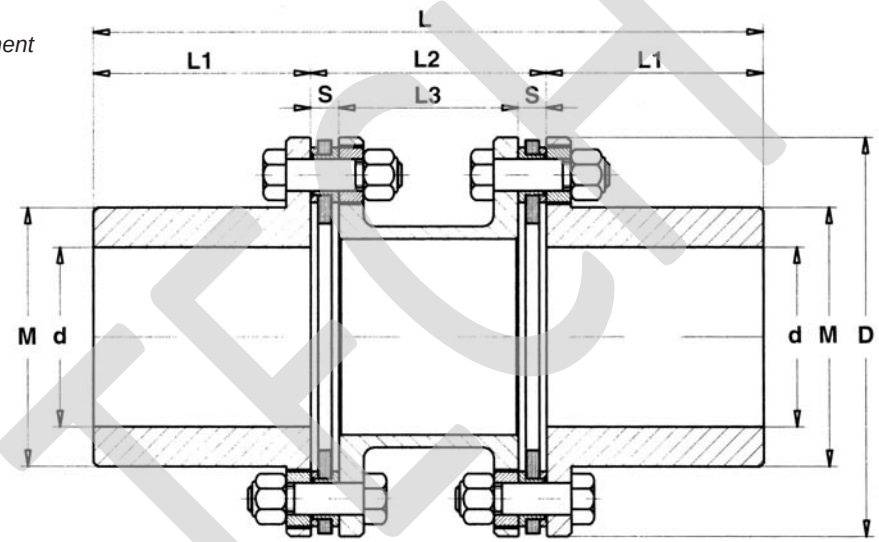
FISATECH

Ranges
HBSX-10

10 BOLTS WITH SPACER
*From **HP 1,9** to **HP 36** at **1 RPM***

Max angular misalignment = 0° 25' each element

Max parallel misalignment = 0.006 x (L3 + S)



DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer length can be modified

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM*		*Nominal Torque*	D	L	d max	L1	S	L2	L3	M
	HP/n	KW/n	Nm	mm	mm	mm	mm	mm	mm	mm	mm
1900-10	1,90	1,40	13400	275	453	115	150	17,5	153	118	165
2500-10	2,50	1,84	17600	275	453	115	150	19	153	115	165
3200-10	3,20	2,35	22500	308	532	130	180	19	172	134	193
4600-10	4,60	3,38	32300	346	600	150	205	19,5	190	151	218
6800-10	6,80	5,00	47800	375	663	165	220	21,5	223	180	240
9000-10	9,00	6,62	63200	410	735	180	240	28	255	199	258
11500-10	11,50	8,45	80800	445	770	190	250	29,5	270	211	272
14000-10	14,00	10,30	98400	470	832	205	280	31	272	210	297
16800-10	16,80	12,35	118000	510	916	230	315	31	286	224	335
19700-10	19,70	14,48	138400	555	982	255	345	31	292	230	365
23800-10	23,80	17,50	167200	587	1020	265	355	32,5	310	245	382
31000-10	31,00	22,80	217800	630	1083	275	370	35	343	273	400
36000-10	36,00	26,47	253000	655	1137	290	390	36	357	285	420

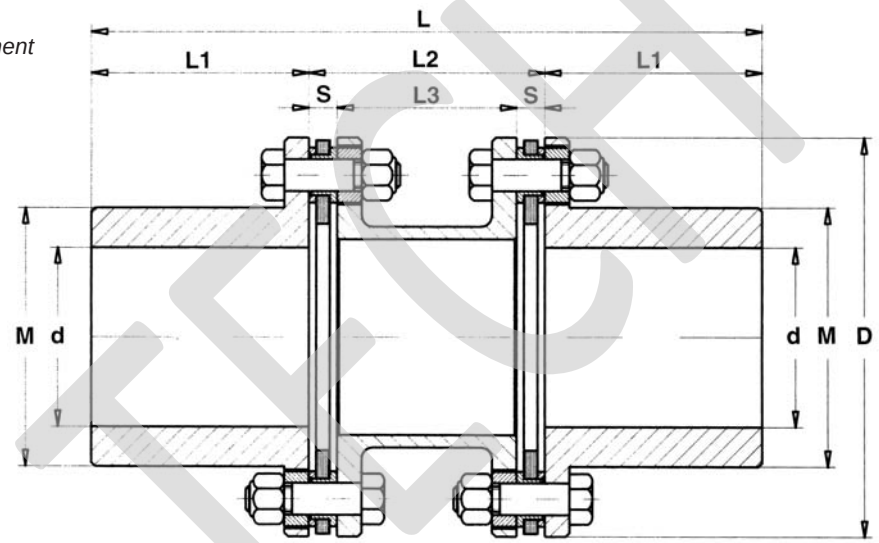
FISATECH

Ranges
HBSX-12

12 BOLTS WITH SPACER
*From **HP 2,3** to **HP 44** at **1 RPM***

Max angular misalignment = 0° 15' each element

Max parallel misalignment = 0.004 x (L3 + S)



DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer length can be modified

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM*		*Nominal Torque*	D	L	d max	L1	S	L2	L3	M
	HP/n	KW/n	Nm	mm	mm	mm	mm	mm	mm	mm	mm
2300-12	2,30	1,69	16200	275	453	115	150	17,5	153	118	165
3100-12	3,10	2,28	21800	275	453	115	150	19	153	115	165
4000-12	4,00	2,94	28100	308	532	130	180	19	172	134	193
5600-12	5,60	4,12	39400	346	600	150	205	19,5	190	151	218
8300-12	8,30	6,10	58300	375	663	165	220	21,5	223	180	240
11000-12	11,00	8,10	77300	410	735	180	240	28	255	199	258
14000-12	14,00	10,30	98400	445	770	190	250	29,5	270	211	272
17200-12	17,20	12,65	120900	470	832	205	280	31	272	210	297
20000-12	20,00	14,70	140500	510	916	230	315	31	286	224	335
24000-12	24,00	17,65	168600	555	982	255	345	31	292	230	365
29000-12	29,00	21,33	203700	587	1020	265	355	32,5	310	245	382
37700-12	37,70	27,72	264900	630	1083	275	370	35	343	273	400
44000-12	44,00	32,35	309200	655	1137	290	390	36	357	285	420

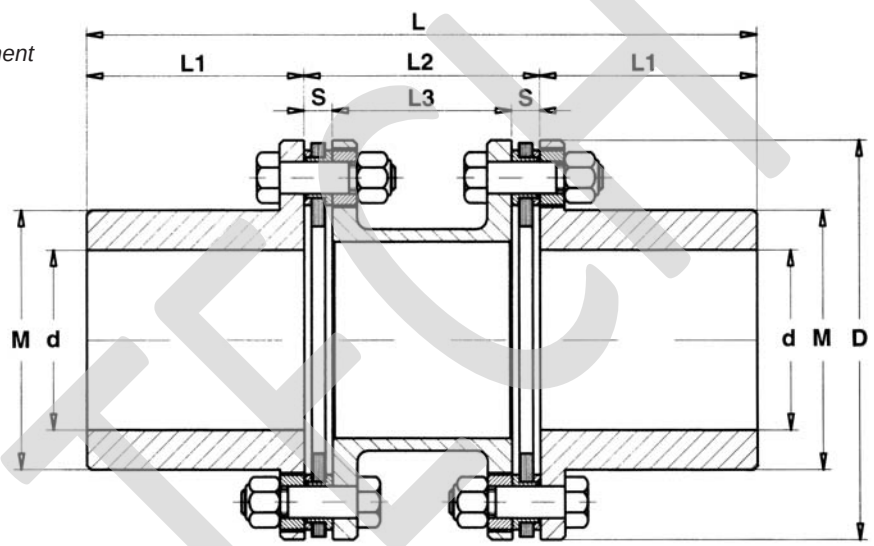
FISATECH

Ranges
BE-10

10 BOLTS WITH SPACER FOR HIGH POWERS
*From **HP 45** to **HP 137** at **1 RPM***

Max angular misalignment = 0° 25' each element

Max parallel misalignment = 0.006 x (L3 + S)



DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer length can be modified

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM*		*Nominal Torque*	D	L	d max	L1	S	L2	L3	M
	HP/n	KW/n	Nm	mm	mm	mm	mm	mm	mm	mm	mm
45500-10	45,50	33,45	319700	695	1125	300	405	40	315	235	435
49500-10	49,50	36,40	347800	725	1170	315	425	40	320	240	460
60000-10	60,00	44,10	421500	755	1230	330	445	42	340	256	480
67500-10	67,50	49,60	474300	785	1280	345	465	43	350	264	500
75000-10	75,00	55,10	527000	815	1330	360	485	44	360	272	525
89000-10	89,00	65,40	625300	845	1375	370	500	47	375	281	540
98000-10	98,00	72,00	688500	875	1425	385	520	48	385	289	560
108000-10	108,00	79,40	758800	905	1475	400	540	49	395	297	580
122000-10	122,00	89,70	857200	935	1530	415	560	51	410	308	600
137000-10	137,00	100,70	962600	965	1605	430	580	53	445	339	625

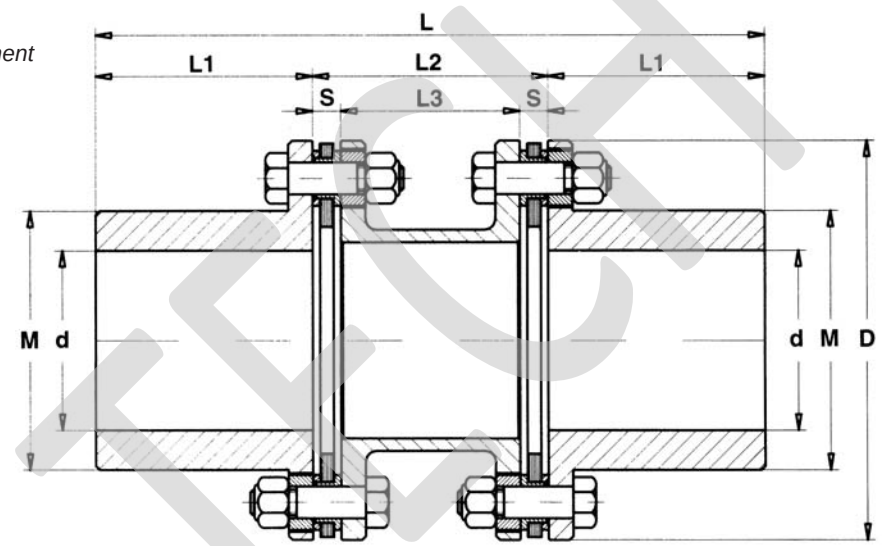
FISATECH

Ranges
BE-12

12 BOLTS WITH SPACER FOR HIGH POWERS
*From **HP 55** to **HP 148** at **1 RPM***

Max angular misalignment = 0° 15' each element

Max parallel misalignment = 0.004 x (L3 + S)



DIMENSIONS REFERRED TO STANDARD VERSION
Hubs and spacer length can be modified

TAB. A

SIZE	*Nominal rating transmissible at 1 RPM*		*Nominal Torque*	D	L	d max	L1	S	L2	L3	M
	HP/n	KW/n	Nm	mm	mm	mm	mm	mm	mm	mm	mm
55500-12	55,50	40,80	390000	695	1125	300	405	40	315	235	435
60500-12	60,50	44,50	425000	725	1170	315	425	40	320	240	460
73500-12	73,50	54,00	516400	755	1230	330	445	42	340	256	480
82000-12	82,00	60,30	576000	785	1280	345	465	43	350	264	500
91500-12	91,50	67,30	643000	815	1330	360	485	44	360	272	525
108500-12	108,50	79,80	762300	845	1375	370	500	47	375	281	540
119500-12	119,50	87,90	839600	875	1425	385	520	48	385	289	560
131500-12	131,50	96,70	924000	905	1475	400	540	49	395	297	580
148500-12	148,50	109,20	1043300	935	1530	415	560	51	410	308	600

FISATECH

Disc coupling assembling and alignment instructions

Disc couplings tolerate misalignments which vary with the number of disc pack bolts. A 4 bolts couplings, for instance, allows a max angular misalignment of 1° corresponding to 0,017 mm per mm (rad), value that, multiplied by the distance between the disc packs or by the coupling outer diameter, give the value of the max parallel and angular misalignment in mm.
Those maximum figures are not intended to be used for initial alignment, because the allowable parallel misalignment under working condition will vary according to the axial deflection and viceversa. Both those values will vary with the speed variation.
Therefore it is important that initial alignment is as right as possible, in order to allow variations of conditions during operation.

COUPLING ASSEMBLING

Hubs have to be assembled on machine shafts so that the hub flange faces are aligned with shaft ends, except in case of different instruction. The length of spacer complete of disc packs, and eventual adapters, will be then equal to the distance between shaft ends (DBSE).
The hubs with bores foreseen for low interference fit have to be uniformly heated at max 120-130°C and quickly assembled on shafts. Do not heat locally in order to avoid stresses and permanent distorsions.
The couplings with adapters are assembled with centring calibrated steps; for assembling and disassembling the central part it is necessary to press the same in order to get over the step. For small/medium size coupling disassembling it is sufficient to insert a screwdriver between the adapter and the hub flange, taking care not damage the connection surfaces meanwhile for big size couplings, on the flanges are foreseen tapped holes for pressing bolts.
When assembling disc pack of the series GC, that have loose sleeves, it is important that the rounded surfaces of the same are in the disc pack side. The higher sleeves have to be assembled into the flange large through holes.
When utilising the coupling type GCSX/CTFX on cooling towers or on long spacer drive, we recommend to start the alignment procedure from the end hubs, considering for alignment the values given by, setting up before the spacer shaft with support and then the other parts.

ALIGNMENT PROCEDURE

The alignment procedure will vary according to the involved machinery.
Then we are not proposing to give operation details, but to propose misalignment limits and suggest the ways for checking the same.

AXIAL ALIGNMENT

Generally, lower is the number of coupling disc pack bolts, higher is the allowed tolerance during initial alignment.
We advice to respect the following limits, unless different specific instruction are given.
The distance between hub flanges (L2) must be than:

For 4 bolts coupling $\Delta a = \pm 1$ mm
For 6 bolts coupling $\Delta a = \pm 0,8$ mm
For 8 bolts coupling $\Delta a = \pm 0,5$ mm
For 10 bolts coupling $\Delta a = \pm 0,5$ mm
For 12 bolts coupling $\Delta a = \pm 0,5$ mm

PARALLEL AND ANGULAR ALIGNMENT

We have three ways for checking the parallel and angular alignment.
The most used is the classic one with the dial gauge, supported by the more innovative one with laser system.
The more practical way consists in checking the gap between flanges, on both disc packs, on 360°; that is possible if all coupling components are assembled.
This method can be used also to verify the coupling alignment time going, without removing the transmission components.
With this last procedure we check simultaneously the parallel Δp and angular $\Delta\alpha$ alignments.
Check flange gap at 12 and 16 o'clock position (check of parallel and vertical angular alignment)
Check flange gap at 9 and 3 o'clock position (check of parallel and horizontal angular alignment)

FISATECH

The values Smax - Smin must be ≤ of Δpα (mm):

For 4 bolts coupling of Δpα (mm) = [α (rad) x D] where α (rad) = 0.004 mm
For 6 bolts coupling of Δpα (mm) = [α (rad) x D] where α (rad) = 0.003 mm
For 8 bolts coupling of Δpα (mm) = [α (rad) x D] where α (rad) = 0.002 mm
For 10 bolts coupling of Δpα (mm) = [α (rad) x D] where α (rad) = 0.0015 mm
For 12 bolts coupling of Δpα (mm) = [α (rad) x D] where α (rad) = 0.001 mm

Then:
Parallel alignment Δp (mm) ≤ (rad) x La
Angular alignment Δα (mm) ≤ (rad) x D

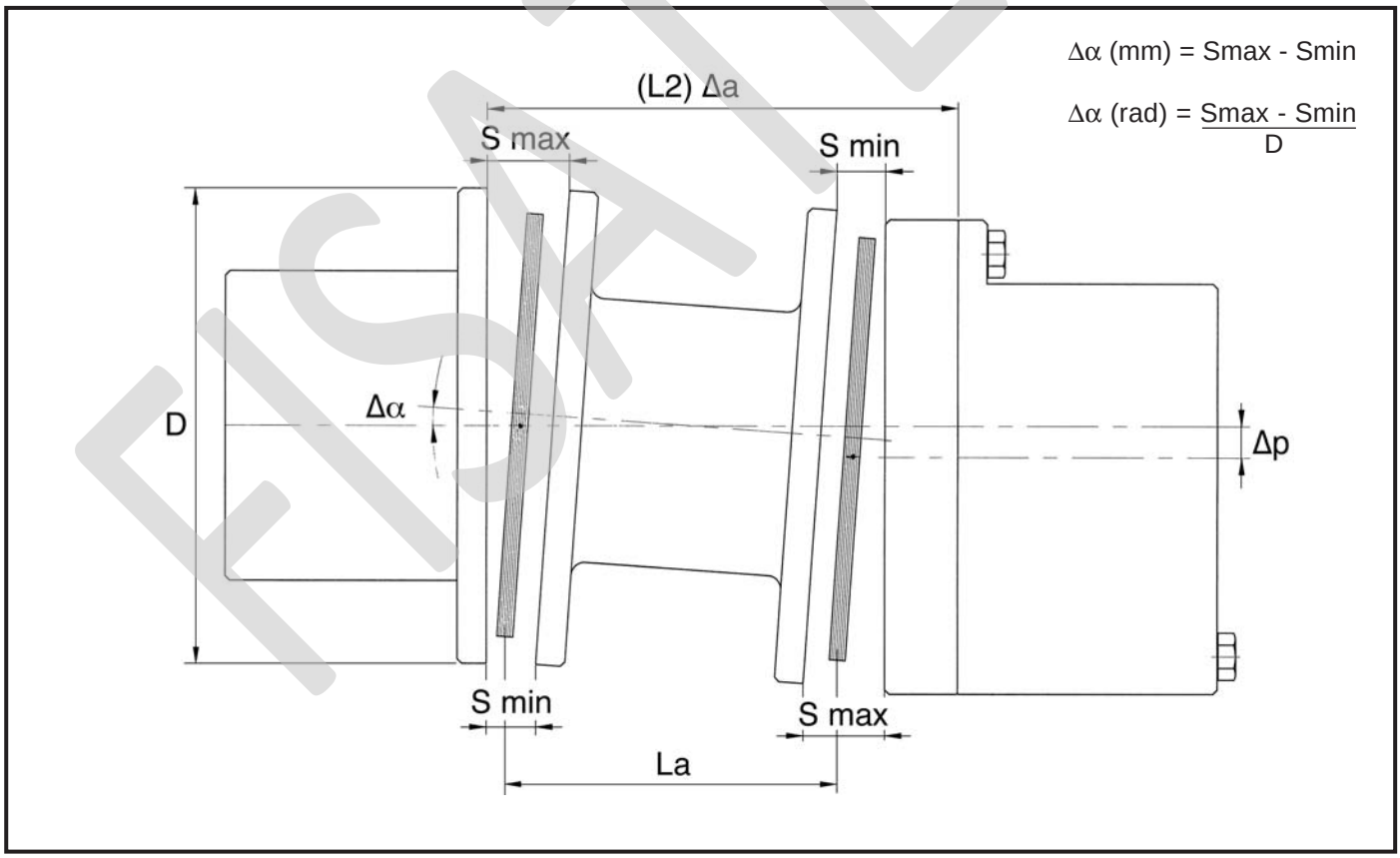
The stated values are for general use and can vary in specific cases, for instance for couplings working at high dilatations or speeds.

In any case, better is the initial alignment, higher is the tolerance at unforeseen misalignment due to structure movements.

After having properly aligned the coupling, make sure that all the bolts or fixing screws are tightened. If possible check the tightening after some hours of operation too.

BALANCING

Usually during balancing on flanges, of couplings for medium and high speeds, are printed some references (e.g. alphabetic letters) to be respected when assembling.
For making easier the precision balancing on site we foresee some tapped hole on flanges in order to have the possibility to add balancing weights.



FISATECH

Assembling procedure of disc packs

A) All couplings have, as a peculiarity, (except the series RH) the possibility to change the flexible elements and eventual centre spacers without moving the connected machines.

B) Examples of disc pack assembling and disassembling of the coupling series HBX - HBSX - HBSX/AH - HBSX/RH - HPX - HPSX - BE

Figure 1

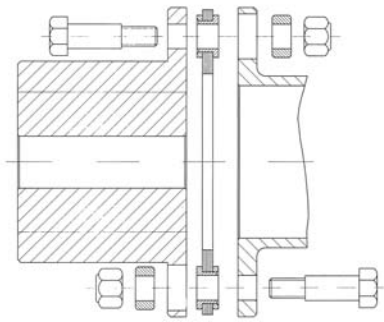


Figure 1a

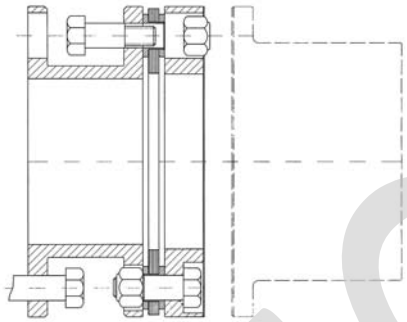


Figure 1b

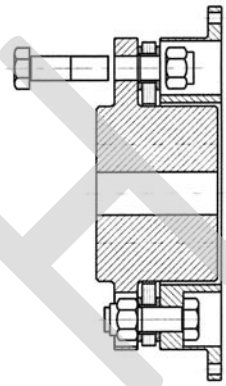


Figure 1 = Disc pack assembling diagram
Figure 1a = Short bolt disc pack assembling diagram, coupling series HBSX/AH
Figure 1b = Short bolt disc pack assembling diagram, coupling series HBSX/RH

C) Examples of disc pack assembling and disassembling of the coupling series GCX - GCSX - GCSX/AH - GCSTX - GCSTX/CTFX - GCSTX/FC

Figure 2

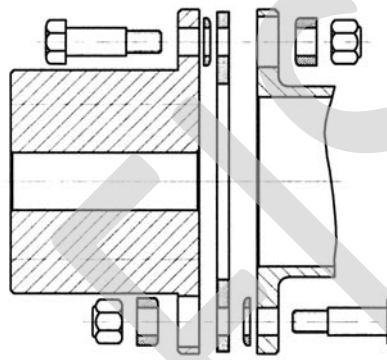


Figure 2a

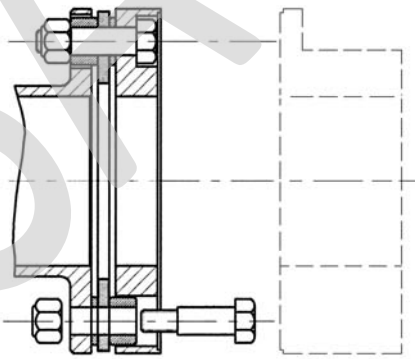


Figure 2b

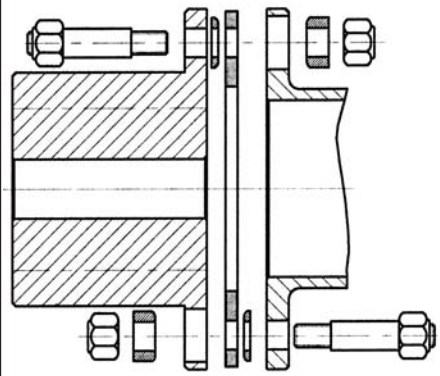


Figure 2 = Disc pack assembling diagram
Figure 2a = Disc pack assembling diagram, coupling series GCSX/AH
Figure 2b = Disc pack assembling diagram, with tie rod

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