SERIES C and C... M

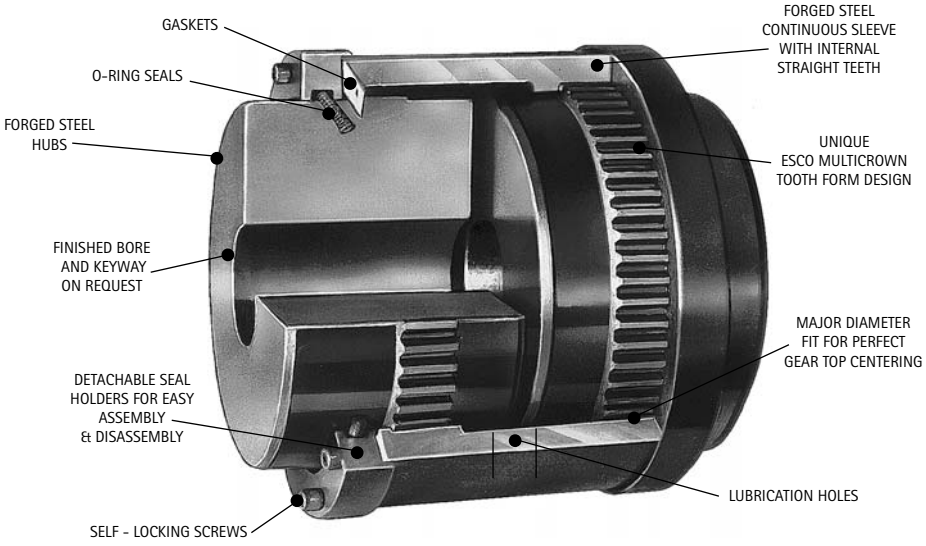
The most compact solution

Maximum torque: up to 174 000 Nm
Bores: up to 290 mm

COMPACT

SIMPLE AND ROBUST

EASY TO ASSEMBLE



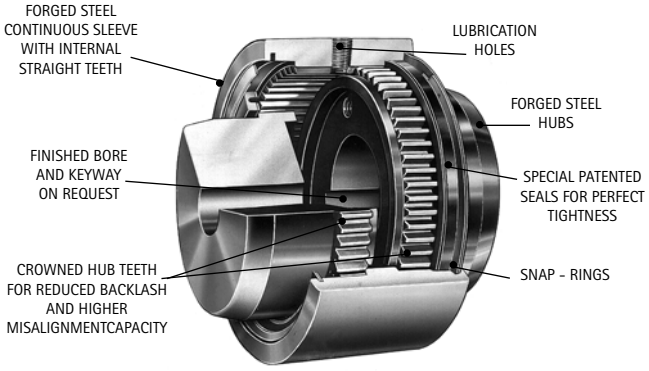
Maximum torque: up to 8 500 Nm
Bores: up to 110 mm

COMPACT

SIMPLE AND ROBUST

ONLY 7 PARTS:

Two snap rings
Two hubs and one sleeve
Two seals

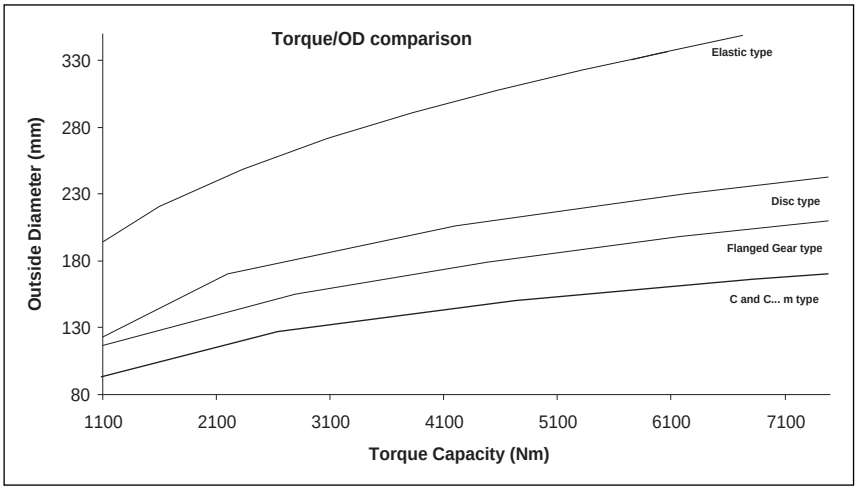


Most compact solution

Thanks to the high torque capacity and the continuous sleeve design, the escogear C and C... M couplings are the most compact answer to any transmission applications. In comparison to other types of couplings and for a given torque they have a substantly lower weight and reduced outside diameter:

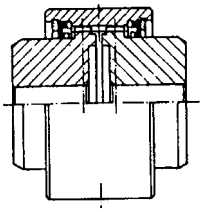
<-> Flanged Gear type : 17% smaller O.D.
<-> Disc type : 30% smaller O.D.
<-> Elastic type : 52% smaller O.D.

This compactness makes the escogear C series ideal for use in applications where space is limited and weight important

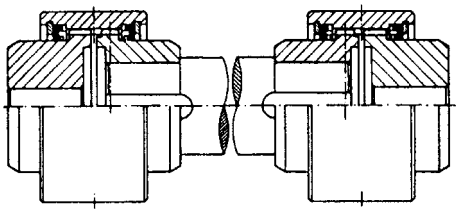


AVAILABILITIES

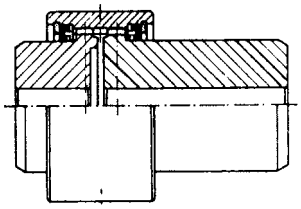
CST ← A310 STANDARD



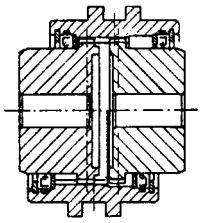
CFS - CFS... M ← A311 FLOATING SHAFT



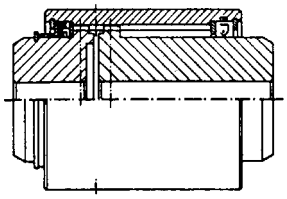
CMM ← A312 MILL MOTOR



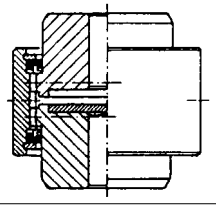
CCO ← A314 CUT-OUT



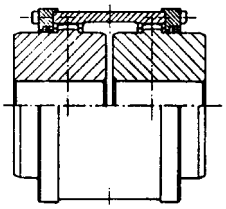
CSH ← A315 SLIDING HUB



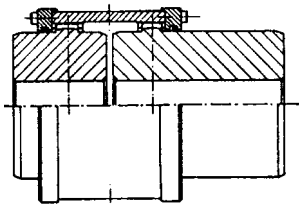
CSV ← A316 STANDARD VERTICAL



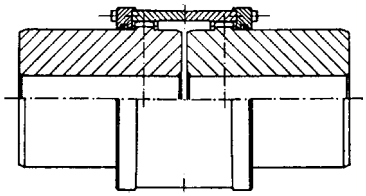
CST... M ← B310 STANDARD



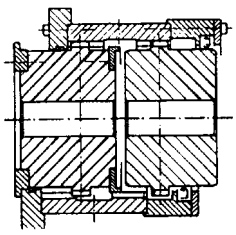
CMM... M ← B312 MILL MOTOR



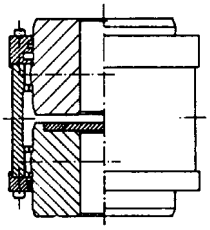
CDMM... M ← B313 MILL-MOTOR



CCO... M ← B314 CUT-OUT



CSV... M ← B316 STANDARD VERTICAL



HOW TO SELECT THE RIGHT COUPLING SIZE

A. Select the size of ESCOGEAR coupling that will accommodate the largest shaft diameter.

B. Make sure this coupling has the required torque capacity according to following formula:

$$\text{torque in Nm} = \frac{9550 \times P \times F_u \times F\,Ex}{n}$$

P = power in kW; n = speed in rpm; F_u = service factor according to tabulation 1.
F Ex = 2 in case of use in potentionally explosive atmospheres Ex , European Directive 94/9/EC. In normal atmospheres, F Ex = 1.

The coupling selected per **(A)** must have an equal or greater torque capacity than the result of the formula **(B)**. If not select a larger size coupling.
Check if application peak torque does not exceed tabulated peak torque Tp indicated planographs A310 to B317.
Check also max. allowable misalignment using the graph of tabulations 2 and 3.

C. Check if shaft/hub connection will transmit the torque. If necessary, select a longer hub.

D. Read carefully assembly and maintenance instructions IM/A300 and IM/B300.

TABULATION 1

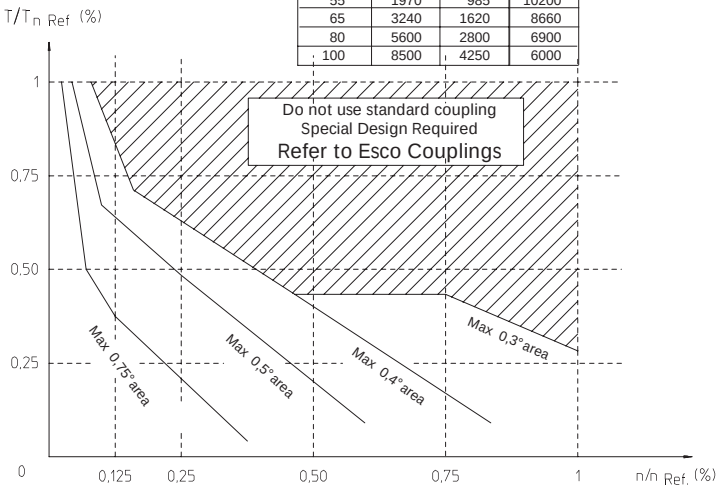
		APPLICATIONS	DRIVER MACHINE: Electric motors Turbines	DRIVER MACHINE: Hydraulic motors Gears drivers	DRIVER MACHINE: Reciprocating engine Electric motors frequent starts
			Service factor F_u		
DRIVEN MACHINE	UNIFORM	Generators - Blowers: centrifugal vane, fans - Centrifugal pumps and compressors - Machine tools: auxiliary drives - Conveyors: belt and chain, uniformly loaded, escalators - Can filling machines and bottling machinery - Agitators: pure liquids.	0,8 to 1,25	1 to 1,5	1,25 to 1,75
		Propeller - Waterjet pumps	1,25	1,5	1,75
	MODERATE SHOCKS	Blowers: lobe - Pumps: gear and lobe types - Vane compressors - Machine tools: main drives - Conveyors: belt and chain not uniformly fed bucket and screw - Elevators, cranes, tackles and winches - Wire winding machines, reels, winders (paper industry) - Agitators liquids and solids, liquids variable density.	1,25 to 1,5	1,5 to 1,75	1,75 to 2
	HEAVY SHOCKS	Generators (welding) - Reciprocating pumps and compressors - Laundry washers - Bending roll, punch press, tapping machines - Barkers, calanders, paper presses - Briquetter machines, cement furnace - Crushers: ore and stone, hammer mill, rubber mill - Metal mills: forming machines, table conveyors - Draw Bench, wire drawing and flattening machines - Road & railroad equipment.	1,5 to 2	1,75 to 2,25	2 to 2,5

1) MAXIMUM MISALIGNMENT

TABULATION 2

CST

CST Size	Tn Nm	Tn Ex Nm	n Ref min-1
30	550	275	16000
40	1100	550	13800
55	1970	985	10200
65	3240	1620	8660
80	5600	2800	6900
100	8500	4250	6000

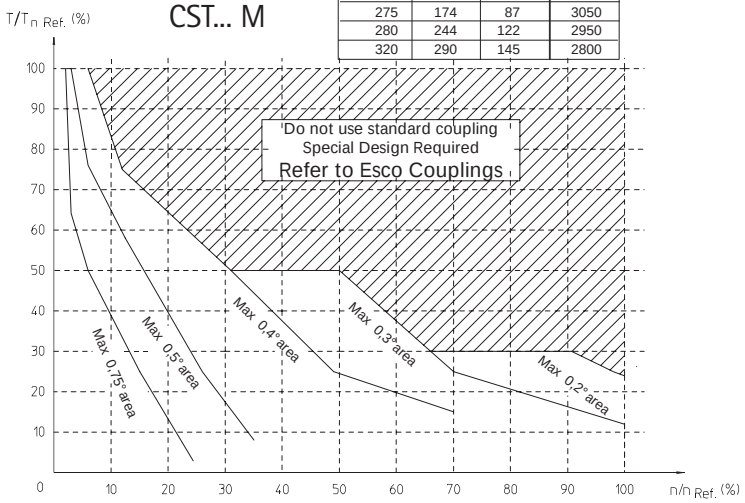


TABULATION 3

GRAPH (T, n)

CST... M

CST...M Size	Tn kNm	Tn Ex kNm	n Ref min-1
110	16	8	6050
130	22	11	5150
155	32	16	4300
175	45	22,5	3950
195	62	31	3600
215	84	42	3450
240	115	57,5	3300
275	174	87	3050
280	244	122	2950
320	290	145	2800



HOW TO USE THE GRAPH ?
Maximum torque, maximum speed and maximum misalignment may not occur simultaneously.
Graph must be used as follows:

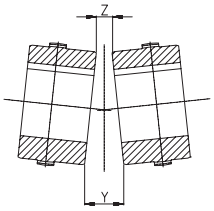
1. Calculate Tn and Tp and select coupling size as usual. Tn = nominal torque; Tp = peak torque
2. Calculate Tn/TnRef and n/nRef and plot the resulting point in the graph.
3. If the resulting point is located in the white area, a standard coupling may be used as far as maximum misalignment doesn't exceed the maximum misalignment indicated in the graph.
4. If the resulting point is located in the shaded area, refer to ESCO
5. In case of use in potentionally explosive atmospheres Ex , proceed the same way but using Tn Ref Ex for the calculation. Max misalignement may not exceed 0,5° per gear mesh.

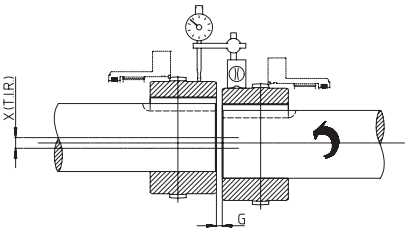
2) MINIMUM MISALIGNMENT = $\Delta K_w min = 0,1°$

3) MISALIGNMENT CONTROL

1- Measure X (TIR) - 2- Measure Y-Z - 3- Verify the relationship for the misalignment control: $\Delta K_W min \leq \frac{X}{Kx} + \frac{Y-Z}{Ky} \leq 0,75 \times \Delta K_W max$

CST...M	Kx	Ky
110	3,80	5,27
130	4,47	6,21
155	5,03	7,44
175	5,72	8,20
195	6,35	9,18
215	7,47	9,98
240	8,24	11,00
275	9,18	12,99





4) EXAMPLES:

Calculation

T/Tn ref = 30%
n/n ref = 30%
} $\Delta K_W max = 0,4°$

CST...M 175: Kx = 5,72 Ky = 8,2

Measurement

X (TIR) = 0,9 mm Y-Z = 0,4 mm

Control

Formule:

$$\Delta K_W min \leq \frac{X}{Kx} + \frac{Y-Z}{Ky} \leq 0,75 \times \Delta K_W max$$

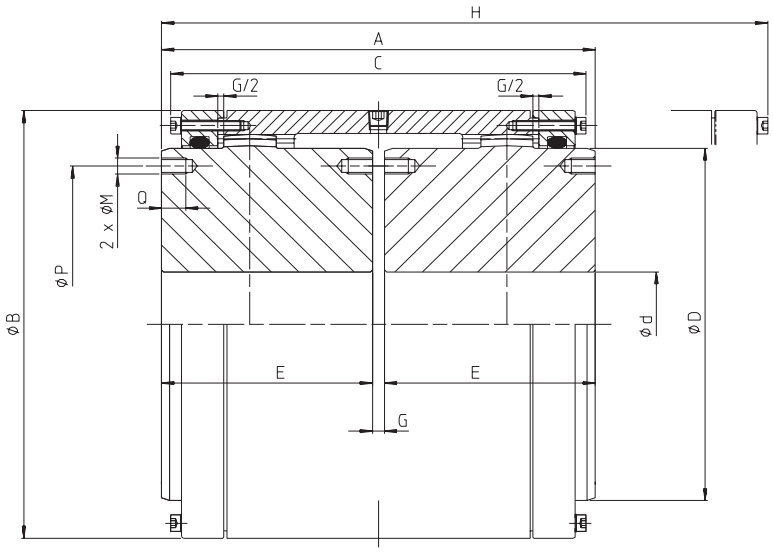
Calculation : $0,1° \leq \frac{0,9}{5,7} + \frac{0,4}{8,2} \leq 0,75 \times 0,4$

LEGEND OF USED PICTOGRAMS	
d Ø nominal max.	MAXIMUM NOMINAL BORE (mm)
d Ø min.	MINIMUM BORE (mm)
d Ø max.	MAXIMUM BORE (mm)
Nm, 1m — Tn	MAXIMUM NOMINAL TORQUE (Nm)
Nm, 1m — Tp	MAXIMUM PEAK TORQUE (Nm)
min.max.	MAXIMUM SPEED (rpm)
	MAXIMUM OFFSET (mm)
α, α, α, α	MAXIMUM ANGULAR MISALIGNMENT (degree)
J (WR²)	INERTIA (kgm²)
	WEIGHT (kg)
Grease	GREASE QUANTITY (dm³)

Notes for series C / CST...M

1	For key according to ISO R 773.
2	Gear maximum continuous transmissible torque for the tabulated misalignment. The effective transmissible torque depends on the bore and shaft/hub connection.
3	Higher speed on special request.
3.1	For grease withstanding centrifugal acceleration of 1.000g. See installation and maintenance manual IM.
3.2	For grease withstanding centrifugal acceleration of 2.000g. See installation and maintenance manual IM.
3.3	Depends on S.
3.4	For long operation in disconnected position contact us.
4	For solid bore.
4.1	Depends on S.
4.2	For solid bore and S minimum.
4.3	Per 100 mm spacer length.
4.4	Depends on L and R.
5	For pilot bored hubs.
5.1	Depends on S.
5.2	For pilot bored hubs and S minimum.
5.3	Per 100 mm spacer length.
5.4	Depends on L and R.
6	See installation and maintenance manual IM.
6.1	Depends on S. Values given for S maximum.
7	On request. For larger S contact us.
8	Values for S minimum. S maximum depends on torque and speed.
9	G must remain constant during operation.
10	Needed to control the alignment and inspect the gears.

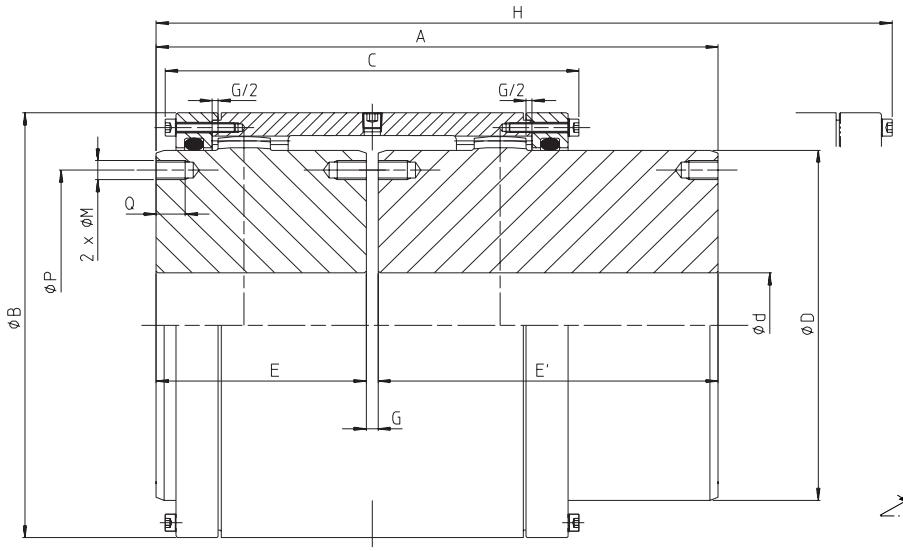
* *Max. torque, speed and misalignment tabulated values may not be cumulated. See IM/A300, IM/B300.*



max. 1,5°°

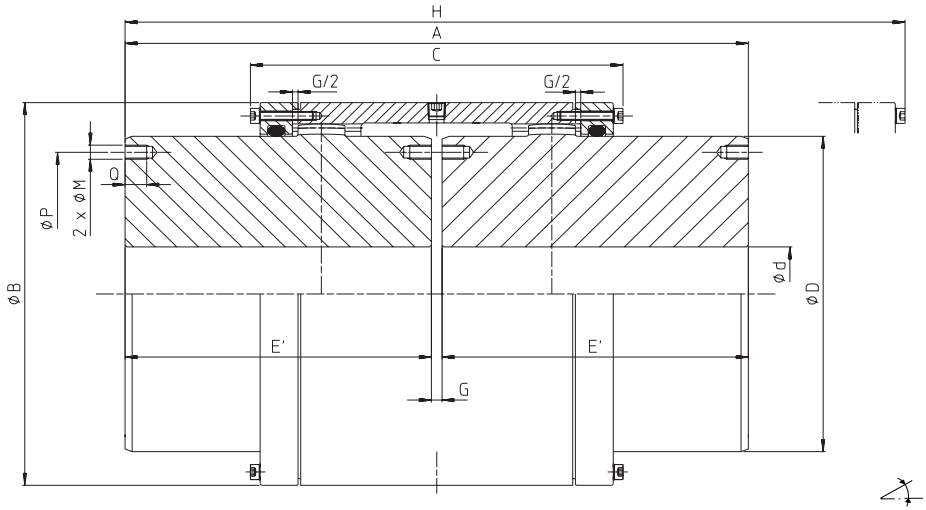
←A150				Type CST ... M							
				110	130	155	175	195	215	240	275
d Ø nominal max.			mm	**110**	**130**	**155**	**175**	**195**	**215**	**240**	**275**
d Ø min.		1	mm	0	55	65	80	90	100	120	150
* d Ø max.			mm	112	132	158	175	198	217	244	290
1m Nm	Tn	2	Nm	**16000**	**22000**	**32000**	**45000**	**62000**	**84000**	**115000**	**174000**
	Tp			32000	44000	64000	90000	124000	168000	230000	348000
min.max.		3.1	tr/min omw/min rpm min^{-1}	3350	3100	2800	2700	2550	2450	2300	2150
		3.2		4700	4350	4000	3800	3600	3450	3300	3050
α α		–	degré graad degree Grad	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**
		–	mm	0,7	0,9	1	1,1	1,2	1,4	1,5	1,7
J (WR^2)		4	kgm^2	0,159	0,340	0,735	1,25	2,19	3,49	5,33	10,90
		5	kg	35	51	81	111	153	207	262	398
Grease		6	dm^3	0,36	0,52	0,80	0,98	1,51	2,02	2,43	3,29
	A		mm	185	216	246	278	308	358	388	450
	B		mm	186	216	254	282	317	346	376	436
	C		mm	174	206	227	254	276	319	346	383
	D		mm	151	178	213	235	263	286	316	372
	E		mm	90	105	120	135	150	175	190	220
mm: ±	G		mm	5	6	6	8	8	8	8	10
	H	10	mm	313	368	415	468	516	602	657	743
	M		mm				M12	M16	M16	M16	M20
	P		mm				205	226	250	276	330
	Q		mm				18	24	24	24	30

* Consult us



←A150				Type CMM ... M							
				110	130	155	175	195	215	240	275
d Ø nominal max.			mm	**110**	**130**	**155**	**175**	**195**	**215**	**240**	**275**
d Ø min.	1		mm	0	55	65	80	90	100	120	150
* d Ø max.			mm	112	132	158	175	198	217	244	290
1m Nm Tn	2	Nm		**16000**	**22000**	**32000**	**45000**	**62000**	**84000**	**115000**	**174000**
Tp				32000	44000	64000	90000	124000	168000	230000	348000
min.max.	3.1	tr/min omw/min rpm min^{-1}		3350	3100	2800	2700	2550	2450	2300	2150
	3.2			4700	4350	4000	3800	3600	3450	3300	3050
α α	–	degré graad degree Grad		**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**
	–	mm		0,7	0,9	1	1,1	1,2	1,4	1,5	1,7
J (WR^2)	4	kgm^2		0,189	0,390	0,845	1,40	2,45	3,88	6,02	12,82
	5	kg		45	63	99	130	180	240	310	491
Grease	6	dm^3		0,36	0,52	0,80	0,98	1,51	2,02	2,43	3,29
	A		mm	260	281	316	343	378	433	478	580
	B		mm	186	216	254	282	317	346	376	436
	C		mm	174	206	227	254	276	319	346	383
	D		mm	151	178	213	235	263	286	316	372
	E		mm	90	105	120	135	150	175	190	220
	E'		mm	165	170	190	200	220	250	280	350
mm: ±	G		mm	5	6	6	8	8	8	8	10
	H	10	mm	313	368	415	468	516	602	657	743
	M		mm				M12	M16	M16	M16	M20
	P		mm				205	226	250	276	330
	Q		mm				18	24	24	24	30

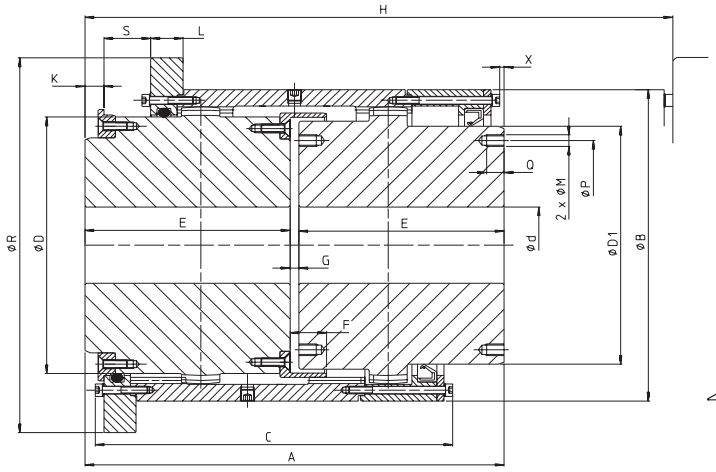
* Consult us



max. 1,5°

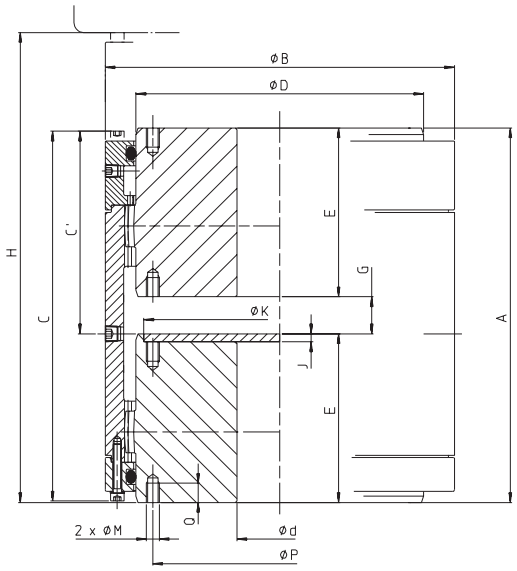
←A150				Type CDMM ... M							
				110	130	155	175	195	215	240	275
d Ø nominal max.			mm	**110**	**130**	**155**	**175**	**195**	**215**	**240**	**275**
d Ø min.		1	mm	0	55	65	80	90	100	120	150
* d Ø max.			mm	112	132	158	175	198	217	244	290
1m Nm	Tn	2	Nm	**16000**	**22000**	**32000**	**45000**	**62000**	**84000**	**115000**	**174000**
	Tp			32000	44000	64000	90000	124000	168000	232000	348000
min.max.		3.1	tr/min omw/min rpm min^{-1}	3350	3100	2800	2700	2550	2450	2300	2150
		3.2		4700	4350	4000	3800	3600	3450	3300	3050
α α		–	degré graad degree Grad	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**
		–	mm	0,7	0,9	1	1,1	1,2	1,4	1,5	1,7
J (WR^2)		4	kgm^2	0,219	0,440	0,956	1,55	2,71	4,27	6,71	14,73
		5	kg	55,7	74,4	116	150	206	273	357	584
Grease		6	dm^3	0,36	0,52	0,80	0,98	1,51	2,02	2,43	3,29
	A		mm	335	346	386	408	448	508	568	710
	B		mm	186	216	254	282	317	346	376	436
	C		mm	174	206	227	254	276	319	346	383
	D		mm	151	178	213	235	263	286	316	372
	E'		mm	165	170	190	200	220	250	280	350
mm: ±	G		mm	5	6	6	8	8	8	8	10
	H	10	mm	313	368	415	468	516	602	657	743
	M		mm				M12	M16	M16	M16	M20
	P		mm				205	226	250	276	330
	Q		mm				18	24	24	24	30

* Consult us



max. 1,5°

				Type CCO...M						
←A150				120	150	165	185	210	230	270
d Ø max. / Ø min.	1		mm	**120**	**150**	**165**	**185**	**210**	**230**	**270**
			mm	55	65	80	90	100	120	150
Nm 1m Tn	2	Nm		**22000**	**32000**	**45000**	**62000**	**84000**	**115000**	**174000**
Tp				44000	64000	90000	124000	168000	230000	348000
min.max.	3.4	tr/min omw/min rpm min^{-1}		1300	1100	1000	900	800	750	620
α α	–	degré graad degree Grad		**2x0,75**	**2x0,75**	**2x0,75**	**2x0,75**	**2x0,75**	**2x0,75**	**2x0,75**
	–	mm		0,9	1	1,1	1,2	0,9	1	1,1
J (WR^2)	4.4	kgm^2		0,433	0,924	1,59	2,69	4,28	6,42	13,22
	5.4	kg		67,2	103,6	143	193	263	328	494
Grease	6	dm^3		0,62	0,96	1,18	1,82	2,44	2,94	4,02
mm: ±	A		mm	286	316	358	388	448	488	550
	B		mm	216	254	282	317	346	376	436
	C		mm	247	272	306	332	382	417	468
	D		mm	178	213	235	263	286	316	372
	D1		mm	165	200	224	250	280	300	360
	E		mm	140	155	175	190	220	240	270
	F		mm	22	22,5	27	30	35,5	39	39,5
	G		mm	6	6	8	8	8	8	10
	H	10	mm	404	445	503	547	633	691	768
	K		mm	12	12,5	16	16	19,5	21	23,5
	R		mm	260	300	330	365	390	420	480
	L		mm	22	25	25	25	25	25	30
	M		mm			M12	M16	M16	M16	M20
	P		mm			205	226	250	276	330
	Q		mm			18	24	24	24	30
	S		mm	32	37	42	46	53	58	68
	X		mm	0,45	1	1	1	3	1	-1



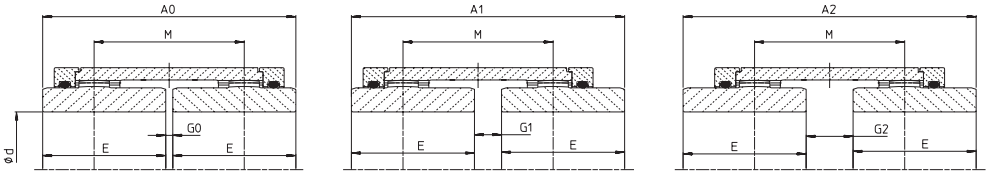
max. 1,5°

←A150				Type CSV ... M							
				110	130	155	175	195	215	240	275
d Ø nominal max.		1	mm	**110**	**130**	**155**	**175**	**195**	**215**	**240**	**275**
d Ø min.			mm	0	55	65	80	90	100	120	150
* d Ø max.			mm	112	132	158	175	198	217	244	290
1m Nm	Tn	2	Nm	**16000**	**22000**	**32000**	**45000**	**62000**	**84000**	**115000**	**174000**
	Tp			32000	44000	64000	90000	124000	168000	230000	348000
min.max.	3.1		tr/min omw/min rpm min^{-1}	3350	3100	2800	2700	2550	2450	2300	2150
	3.2			4700	4350	4000	3800	3600	3450	3300	3050
α α	–		degré graad degree Grad	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,75**	**2 x 0,5**	**2 x 0,5**
	–		mm	0,7	0,9	1	1,1	1,2	0,9	1	1,1
J (WR^2)	4		kgm^2	0,159	0,340	0,735	1,25	2,19	3,49	5,33	10,90
	5		kg	35	51	81	111	153	207	262	398
Grease	6		dm^3	0,45	0,67	1,01	1,32	1,95	2,53	3,06	4,37
mm ±	A		mm	199	233	264	299	332	389	426	483
	B		mm	186	216	254	282	317	346	376	436
	C		mm	196	228	249	276	298	341	368	408
	C'		mm	109	125	135,5	149	160	181,5	195	216,5
	D		mm	151	178	213	235	263	286	316	372
	E		mm	90	105	120	135	150	175	190	220
	G	9	mm	19	23	24	29	32	39	46	43
	H	10	mm	349	408	455	508	556	642	697	786
	J		mm	5	6	6	6	6	6	6	6
	K		mm	140	165	195	224	250	274	302	356
	M		mm				M12	M16	M16	M16	M20
	P		mm				205	226	250	276	330
	Q		mm				18	24	24	24	30

* Consult us

Caractéristiques principales –Voornaamste karakteristieken – Main features – Viktiga fördelar
Charakteristische Hauptmerkmale – Caracteristicas principales – Caratteristiche principali

3 POSITIONS MOYEUX
3 NAVENPOSITIES
3 HUBS POSITIONS
3 EINBAUMÖGLICHKEITEN
3 NAVKOMBINATIONER
3 POSICIONES CUBO
3 POSIZIONI DEI MOZZI



←A150			Type CST... M							
			110	130	155	175	195	215	240	275
d Ø nominal max.		mm	**110**	**130**	**155**	**175**	**195**	**215**	**240**	**275**
d Ø min.		mm	0	55	65	80	90	100	120	150
* d Ø max.		mm	112	132	158	175	198	212	244	290
	A_0	mm	185	216	246	278	308	358	388	450
	A_1	mm	199	233	264	299	332	389	426	483
	A_2	mm	213	250	282	320	356	420	464	516
	E	mm	90	105	120	135	150	175	190	220
	G_0	mm	5	6	6	8	8	8	8	10
	G_1	mm	19	23	24	29	32	39	46	43
	G_2	mm	33	40	42	50	56	70	84	76
	M	mm	109	128	144	164	182	214	236	263

* Consult us

4 ALTERNATIVES – 4 ALTERNATIEVEN – 4 ALTERNATIV – 4 AUSFUEHRUNGEN – 4 ALTERNATIVAS – 4 ALTERNATIVE