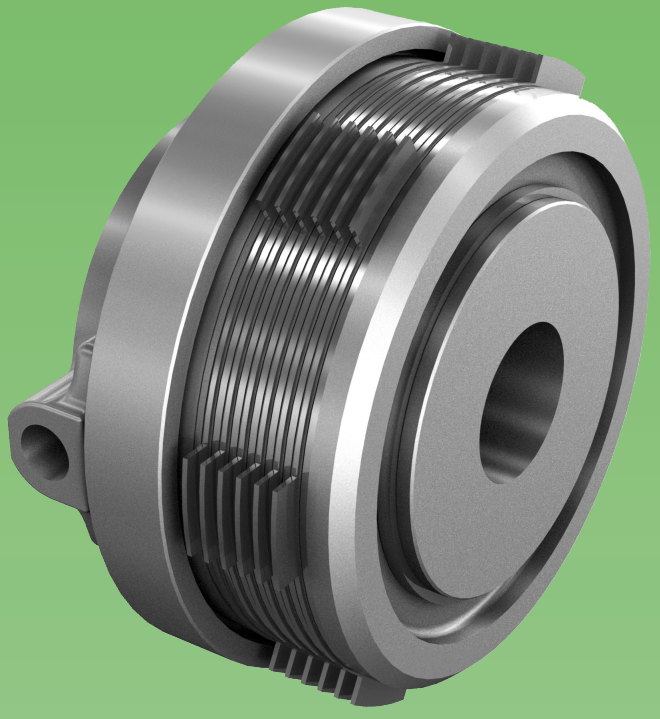
TRANSFLUID

LLOYD'S REGISTER · LRQA
ISO 9001

TRANSFLUID

trasmissioni industriali



drive with us

SH-SHC

OIL ACTUATED CLUTCHES

SH-SHC OIL ACTUATED CLUTCHES

TRANSFLUID oil actuated are wet type, multiple sintered plate units designed to run in oil and actuated by oil pressure.

Advantages of TRANSFLUID oil actuated clutches:

1. **No adjustment required for wear**, because the piston advances automatically adjusting for wear.

2. **Constant torque for the life of the friction plates**, because there is no requirement for periodic regulations.

3. **Compact size to torque capacity because the torque is not affected by worn plates and no adjustment space is required.** Therefore, the clutch can be mounted in compact spaces with an overall reduction in equipment dimensions.

4. **High torque capacity because the engagement effort is created by oil pressure and no manual effort is required**. This is even more evident in larger clutches.

5. **Easy automated remote control** because of hydraulic control. This eliminates the need for complex activation systems. Therefore the clutch is easily incorporated in equipment requiring semi-automatic or automatic cycles.

OTHER ADVANTAGES:

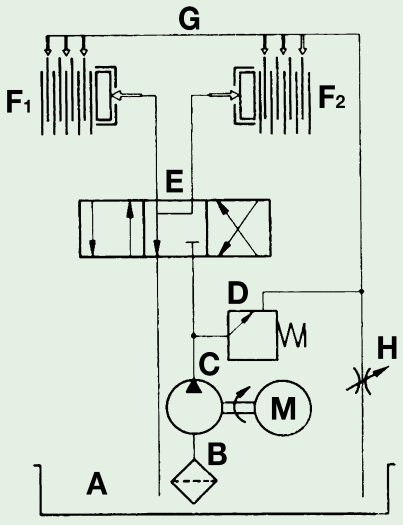
6. **No worn plates due to incorrect adjustment** because the hydraulic actuation requires no regulation.

7. **Long life of friction plates** which becomes very important where an interruption can cause problems in the assembly line.

- **Actuating oil flows indicated are calculated for 0.1 sec. engagement time. Engagement time is proportional to oil flow.**
- **Forced lubrication is recommended. If this is not possible splash lubrication is permitted provided friction plates are immersed 8 mm. or less.**
- **Oil viscosity to be 32 cST or less (at 40°C) if piping passages are the minimum recommended.**
- **Lubrication oil flow to be 1 lt/min. x 7.5 kW for machine tools and 2 lt/min. x 7.5 kW for vehicle transmissions.**

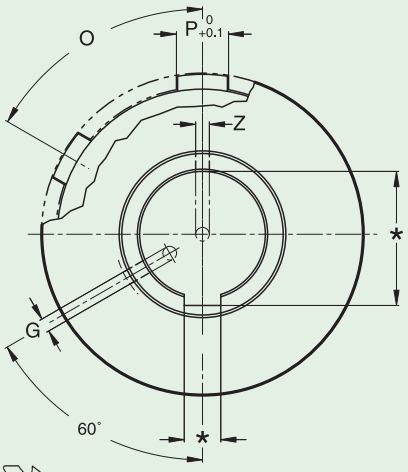
Capacity data			**630**	**640**	**650**	**660**	**670**
Max torque		Nm	108	196	392	745	1157
Oil flow		l/min	7.5	11	20	32	50
Max press		bar	12	16	16	16	16
Max speed		rpm	5000	4500	3500	2900	2500
J	Input	kgcm²	10	37	102.5	227.5	450
	Output	kgcm²	1.8	5.8	21.3	30	82.5

Torque at 10 bar engaging pressure - Oil flow to engage in 0.1 sec.
◤Only upon request

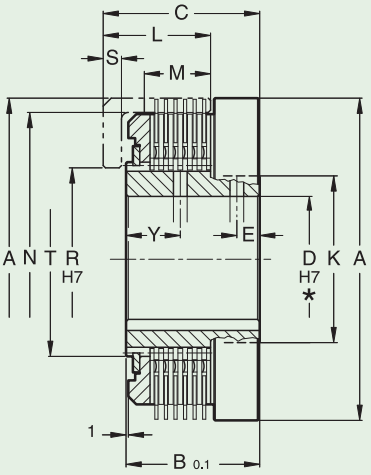


STANDARD HYDRAULIC CIRCUIT

A	-	Sump
B	-	Suction filter
C	-	Pump
D	-	Relief valve
E	-	Control valve
F_1 - F_2	-	Clutches
G	-	Lubrication line
H	-	Lubrication flow control valve
M	-	Motor pump



SH
without collector

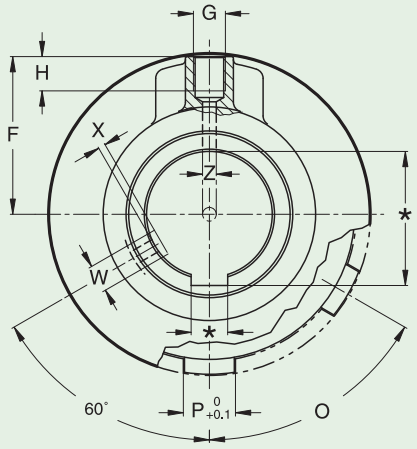


Dimensions

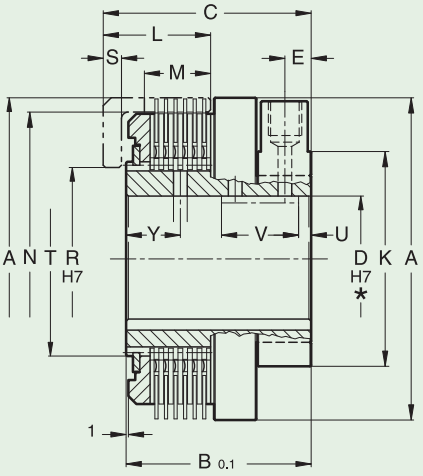
Size

	A	B	C	D min	D max	E	G	K	L	M	N	O	P	R	S	T	Y	Z	Weight kg
SH 630	86	51	58	18	30	8.5	5	40	40	30	78	6x60°	19	47	5	46	19.5	5	1.5
SH 640	112	54	63	25	48	9.5	5	60	44	29	103	6x60°	19	68	7	66	22	5	2.8
SH 650	141	58	68.5	35	62	9.5	6	77	47	29	128.5	6x60°	22.2	80	8	85	24	6	4.8
SH660	168	59.5	72.5	45	72	10.5	8	90	49	29	154	12x30°	15.8	100	10	96	24.5	6	7.3
SH 670	195	72	86	55	82	12	9	100	60	38	180	12x30°	19	110	11	106	27.5	8	11.6

*To be specified with order – Keyway UNI 6604-69 - DIN 6885/1 – D max. with DIN 6885/2 keyway
◤Only upon request – Dimensions can be changed without notice



SHC
with collector



Dimensions

Size

	A	B	C	D min	D max	E	F	G	H	K	L	M	N	O	P	R	S	T	U	V	W	X	Y	Z	Weight kg
SHC 630	86	71	78	18	30	10	41	M12x1.5	12	56	40	30	78	6x60°	19	47	5	46	7	26	8	2	19.5	5	1.7
SHC 640	112	76	85	25	45	11	54	M12x1.5	12	75	44	29	103	6x60°	19	68	7	66	7.5	28	10	2.5	22	5	3.5
SHC 650	141	81	91	35	58	11.5	69	M14x1.5	15	94	46	29	128.5	6x60°	22.2	80	8	85	7.5	30	12	3	24	6	6
SHC 660	168	85.5	98.5	45	68	13	82	M14x1.5	15	108	49	29	154	12x30°	15.8	100	10	96	8.5	33	12	3.5	24.5	6	9.1
SHC 670	195	99	113	55	76	13.5	95	M14x1.5	15	122	60	38	180	12x30°	19	110	11	106	8.5	36	14	4	27.5	8	13.9

*To be specified with order – Keyway UNI 6604-69 - DIN 6885/1 – D max. with DIN 6885/2 keyway
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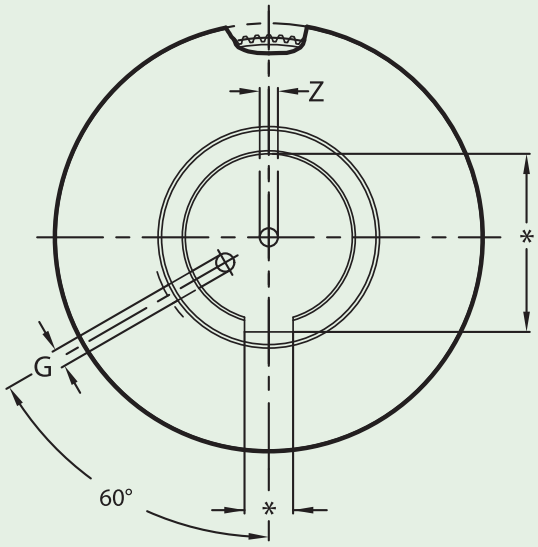
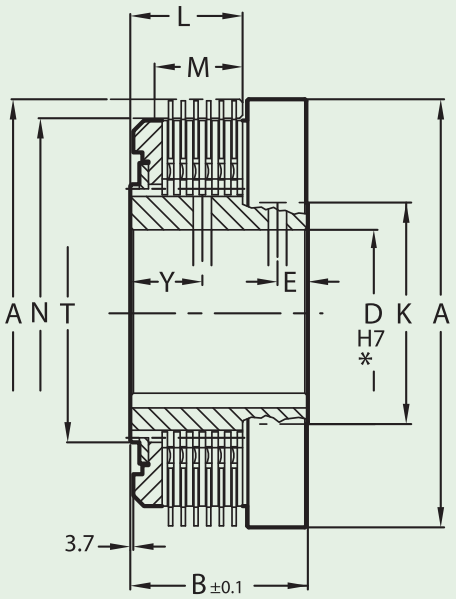
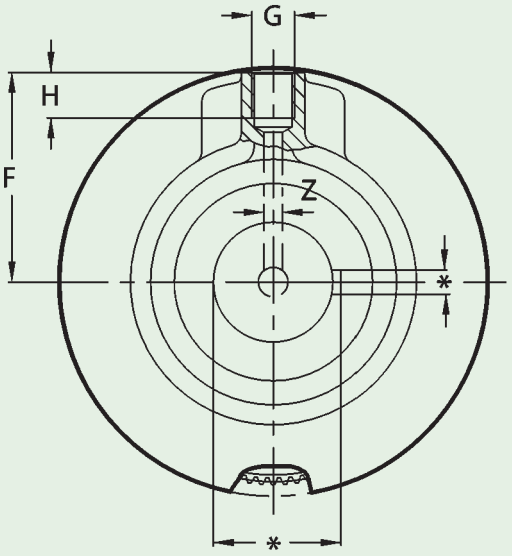
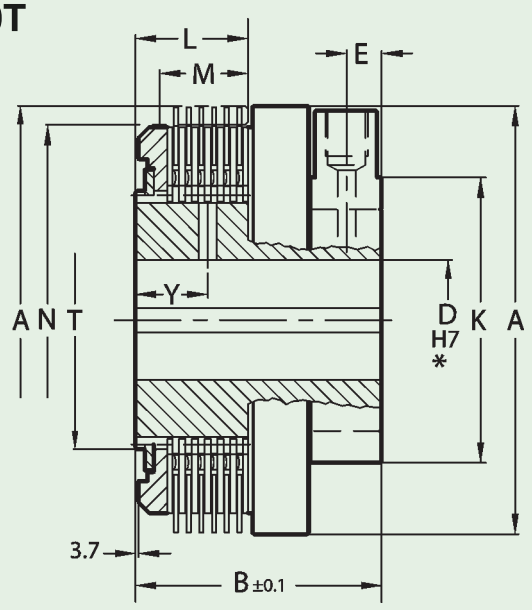
SH 690T





SHCU 690T





Dimensions

Size	A	B	D min.	D max.	E	G	K	L	M	N	T	Y ◤	Z ◤
SH 690T	258	95	50	115	15	10	140	61	46	227	156	40,5	10
SHCU 690T	258	127	50	90	15,5	M16x1,5	165	61	46	227	156	40,5	10

TECHNICAL DATA

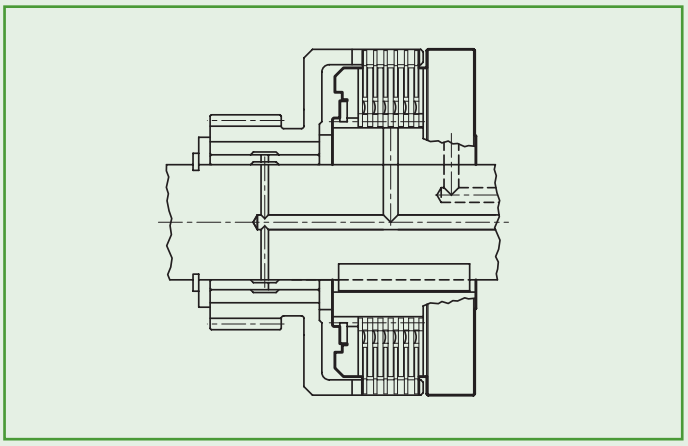
	DRIVING RING GEAR DATA				
	PITCH	Nr. OF TEETH	PRESSURE ANGLE	PITCH DIA.	MEASUR. OVER 4,5 DIA PINS
SH 690T SHCU 690T	2,54	93	14°30'	236,22	229,3 $^{+0,3}_{0}$

	MAX SPEED	OIL FLOW (TO ENGAGE IN 0,1 SEC.)	J INPUT	J OUTPUT	WEIGHT	PRESSURE	SLIP TORQUE
SH 690T	2000 rpm	96 l/min.	1668 kgcm²	250 kgcm²	27,2 kg	10 bar	2492 Nm
SHCU 690T	1700 rpm	96 l/min.	1750 kgcm²	250 kgcm²	32,5 kg	10 bar	2492 Nm

* To be specified with order - Keyway ISO 773 - D max. with DIN 6885/2 keyway

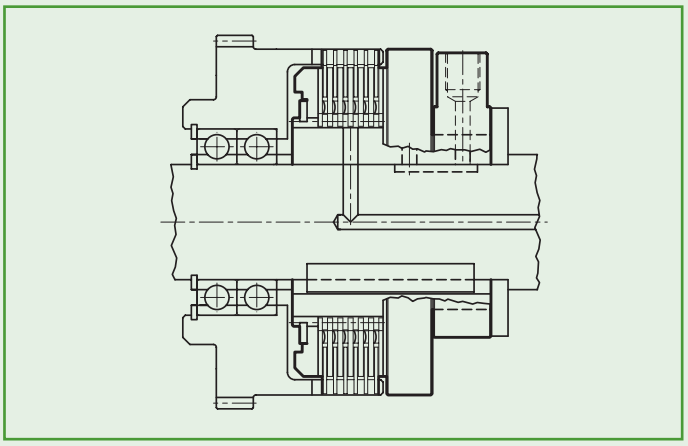
◤ Only upon request

Dimensions can be changed without notice



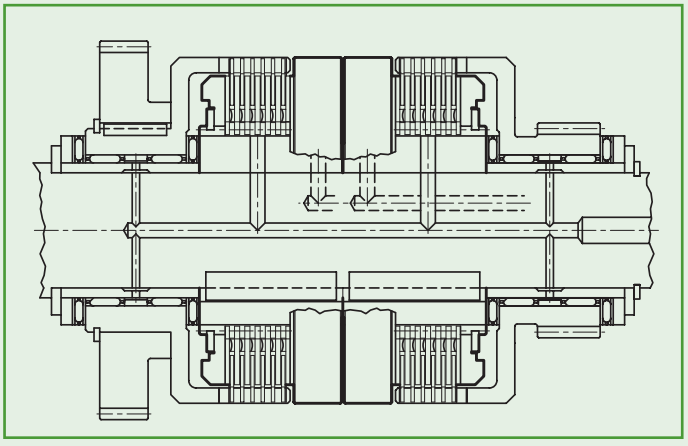
Single clutch no collector

For use where desired to locate the radial feed away fron the clutch. Very compact.



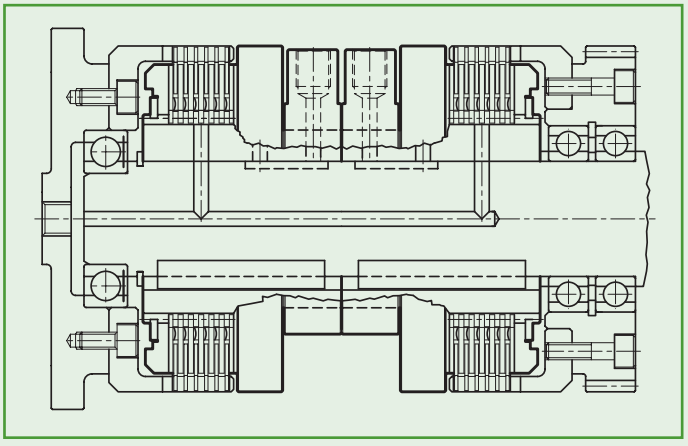
Single clutch with collector

Integral oil feed. No shaft “rifle-drilling” required for control.



Back to back duplex arrangement

Very compact size. Particularly suitable for reverse gears or two speed gear boxes.



Back to back duplex arrangement with integral oil collector

One clutch is used as a brake, the other is connected to a gear.

STEP 1 – DETERMINE REQUIRED TORQUE

• Tab. **A - Service factor S**

Prime mover	Driven equipment load classification			
	light load	mod. load	mid load	heavy load
AC elect Motor	1	1.5	2	2.5
Diesel engine	1.5	2.0	2.5	3.0

- The motor size may be used to determine the torque required for the clutch:

  T = 9550 x kW / rpm (Nm)

- In addition to the nominal torque to be transmitted, it is necessary to consider the torsional characteristic of the system. It is practical to use a sevice factor which depends upon prime mover and type of load:

$T_{KN} \geq S \times T$, where S factor is taken from table A

STEP 2 - QUICK SELECTION WITH TORQUE

- Determine the clutch model and using diagram of Fig. **1** determine clutch size having the required torque capacity at the available pressure
- Check that selected clutch can accommodate the bore size required

STEP 3 - VERIFY CLUTCH ENERGY CAPACITY

$$E = 0{,}005482 \times J \times (n_2^2 - n_1^2) \leqslant Q$$

- Assuming:

E = Kinetic Energy (Joule)
J = Inertia referred to shaft (kgm^2)
n_1 = Initial speed (rpm)
n_2 = Final speed (rpm)

- Using diagram of Fig. **2** verify that selected clutch is correct for required cyclic rate
- If the operating point is above the curve reselect clutch based on energy capacity
- Note: $J = PD^2/4$

The cooling rates represented by the above curves are based on an external lubricant flow of 4 liters per minute through the disc pack

Fig. **1**

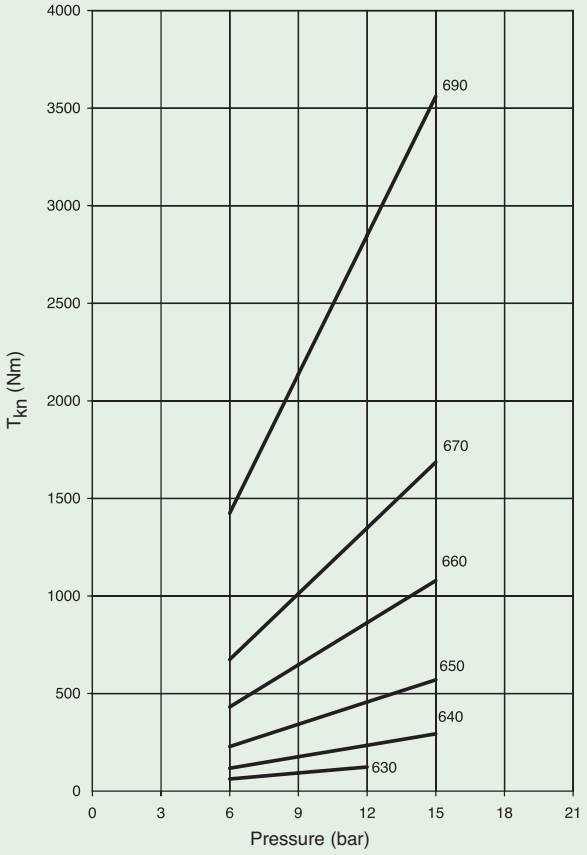
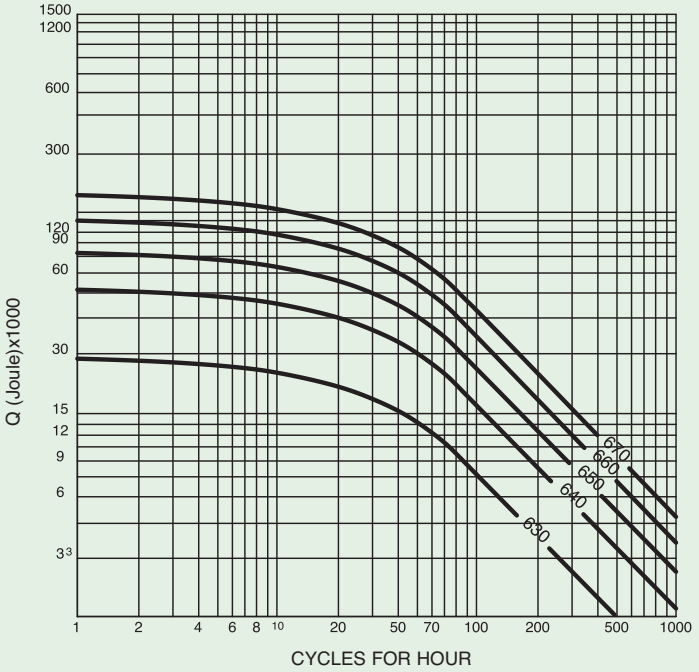


Fig. **2**



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