



LuK Tractor Clutches



SCHAEFFLER

24/7

LuK Tractor Clutches: No.1 in the field at all times!

The genuine LuK portfolio has the right parts for every possible use – OE quality and operational comfort included. LuK is the leading manufacturer of clutch technology, supplying all major tractor manufacturers worldwide. LuK damping systems provide a highly effective system to dampen vibrations. Rely on our cost effective products with prolonged operating life. Have the freedom to work your field 24/7.



We move the world – with quality.

Schaeffler Automotive Aftermarket is a specialist in components and services involving the complete drivetrain in passenger cars and commercial vehicles – from engines, to transmissions, to chassis. As a globally active company we move millions of people every day in cars, trucks, buses, and tractors. Our products are used in almost every new vehicle throughout the world – and for good reason: Schaeffler is the innovation-leader in original equipment manufacturing and aftermarket sales – and is a guarantee of the very highest quality.





The LuK Tractor portfolio at a glance:



Single Clutch systems

Designed and manufactured with a pressed steel housing for maximum strength and minimum space requirements in lower powered tractors.



Double Clutch systems

Two clutches in one unit – one to drive the wheels and one for the PTO. A single diaphragm spring provides load for both clutches.



Dampers

A simple but rugged and durable component designed to eliminate transmission noise and vibration caused by cyclic irregularities in the drive train.



Discs

The comprehensive range of LuK organic and sintered discs for single and double clutches allow for high torque transmission and high operating temperatures ensuring increased clutch service life.



Lever Kit

The tractor clutch repair solution from LuK, containing all OE quality parts required to carry out a full repair. LuK Lever Kits are available for both captive and loose levers.



RepSet

Each LuK RepSet is a complete tractor clutch replacement solution. Every component required for a professional repair is in the box. Including life time warranty against manufacturing defects.



New LuK Tractor Parts Database

LuK TraCat 2015 is a new MS Access based LuK tractor parts catalogue database that replaces the MS Excel versions previously available. TraCat 2015 provides easy-to-use search facilities with interactive screens that make identifying the correct parts much easier, quicker and more accurate.

The TraCat DVD will be updated on a regular basis to include any new applications, product updates and changes. In order to receive your free ongoing copy, please call the LuK Tractor Customer Service Department on 01432 264264 or send an email to hfd-pm@schaeffler.com with your details.



Agricultural applications:

Aebi	Fendt	Kramer	Pronar
AGCO	Ferrari	Krieger	Rapid
Agrifull-Toselli	Foton	Kubota	Reformwerke Wels
Aktiv Fischer	Goldoni	Kukje	Renault
ATM	Grundner	Lamborghini	Rothenburger-Metallwerke
Bautz	Güldner	Landini	Same
BCS	Guss & Armaturenwerk	Lanz	Schanzlin
Belarus	Gutbrod	Lindner	Schlüter
BKS/Yale	Haas	L S Tractors	Schmotzer
Carraro	Hako	Manitou	Steinbock
Case-IH	Hanomag-Rheinstahl	Marshall	Steyr
Challenger	Harnischfeger	Massey	Still
Charkov	Hatz	McCormick	Universal
Claas	Hieble	Mercedes	Ursus
Clark	Holder	Newage Lyon	Uzel
County	Hürlimann	New Holland	Valtra Valmet
Crede	Irion	Nordtrak	Volvo
Deutz Fahr	Iseki	Normag	Wahl
Dexheimer	JCB	Nussmuller	YTO
Eaton	Jenbacher	Porsche-Diesel	Zetor
Eicher	John Deere	Potratz	
Farmtrac	Ködel + Böhm	Primus	

Industrial applications:

Barford	Liner Products	Sanderson	Winget
Benford	Pel Job	Thwaites	
Bonser	Sambron	Volvo	



Reliable quality – LuK Tractor Clutches.

Single Clutch

Description:

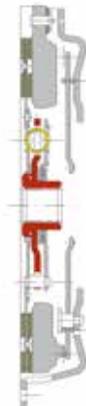
The clutch is engaged by the diaphragm spring load and disengaged when the clutch release bearing moves the diaphragm spring fingers towards the flywheel. The clutch disc is located between the flywheel face and the clutch pressure plate, and normally incorporates a torsion damper.

Characteristics:

The clutch is designed and manufactured with a pressed steel housing, which provides for low cost, with maximum strength and minimal space requirements. The cast iron pressure plate has a large mass which, when used with sintered friction materials is very tolerant of operating temperatures up to 600°C which can be experienced with intermittent overload conditions.

Applications:

Tractors with power range from 20 to 130 kW.



Single Clutch with independent drive for PTO

Description:

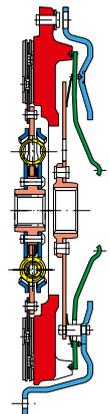
The clutch is engaged by the diaphragm spring load and is disengaged when the clutch release bearing moves the diaphragm spring fingers towards the flywheel. The clutch disc is located between the flywheel face and the clutch pressure plate, and usually incorporates a torsion damper. When an independent PTO drive is required, this is provided by a splined hub fixed inside the cover assembly (as shown in the accompanying picture) which engages with a hollow shaft passing into the transmission. In this way the PTO drive is being driven whenever the engine is running, and independently of the clutch operation.

Characteristics:

The clutch is designed and manufactured with a pressed steel cover housing, which provides for low cost with maximum strength and minimal space requirements. The cast iron pressure plate has a large mass which, when used with sintered friction materials is very tolerant of operating temperatures up to 600°C which can be experienced with intermittent overload conditions.

Applications:

Tractors with independent PTO clutches.
Power range from 20 to 130 kW.





Double Clutch

Description:

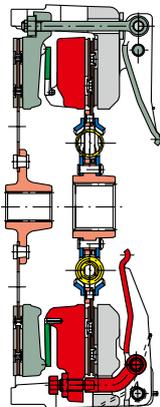
Two independently actuated clutches within one unit – one for the wheel drive, and one for the PTO. The engagement load for both clutches is provided by a single diaphragm spring located between the wheel drive and PTO pressure plates. Both clutches are normally engaged, and are only disengaged when the driver operates either the clutch pedal, or a separate PTO hand lever. Two versions of the clutch are used: Independently operated – here the clutches are engaged and disengaged independently of each other through two separate release bearing mechanisms. Sequentially operated – here, only one clutch release bearing is used, which during operation disengages the wheel drive clutch first, and if required, further depression of the clutch pedal will then disengage the PTO clutch second. Releasing the clutch pedal will engage the PTO clutch first, followed by the wheel drive clutch.

Characteristics:

Exceptionally strong construction proved with the manufacture of more than a million units. Easily adapted to all applications. Long life provided by the use of the highest quality friction materials and an extended wear reserve travel for the diaphragm spring. Position of PTO and the wheel drive clutch disc is optional, either may be located within the clutch or against the flywheel.

Applications:

Tractors from 20 to 130 kW with a 2-shaft-transmission.



Double Clutch with safety PTO

Description:

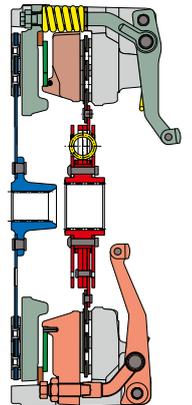
Two independently actuated clutches within one unit. The diaphragm spring provides the engagement load for the wheel drive clutch only which is disengaged in the same way as the standard double clutch. In the Safety PTO clutch, the PTO clutch is normally disengaged, and is engaged by the driver operating the engagement lever which moves the PTO engagement bearing forward which, through the clutch engagement levers, provides the engagement load which transmits the torque through the PTO clutch disc. The clutch is named Safety PTO because the PTO clutch is normally disengaged at engine start-up, in the event of a mechanical failure of the clutch linkage, the PTO clutch will always immediately disengage automatically.

Characteristics:

Strong construction. Increased service life due to an extended wear reserve of the diaphragm spring which is exclusively used for the wheel drive clutch. Simple, single lever operation of the PTO, with enhanced safety for PTO operations.

Applications:

Tractors from 20 to 95 kW with 2-shaft-transmission and having the PTO clutch disc against the flywheel.





Ensuring operability – LuK Tractor Clutches & Discs.

Safety PTO with Torsion Damped Live Transmission Drive

Description:

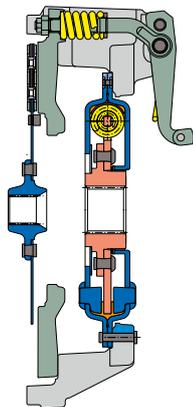
This clutch is designed for vehicles having a shuttle or power shift transmission for the wheel drive, and requiring a mechanical clutch for the PTO. The PTO clutch disc is against the flywheel, and is normally disengaged, and then manually engaged by the driver. Fixed into the cast iron clutch housing is a torsion damped independent live hub drive for the wheel transmission. The wheel drive transmission is driven through a hollow shaft.

Characteristics:

The torsion damper allows precise tuning of the wheel drive transmission input to minimise noise and vibration due to the cyclic irregularity of the engine. Simple, single lever operation of the PTO, with enhanced safety for PTO operations.

Applications:

Tractors from 20 to 100 kW with a shuttle, semi or full power shift transmission for the wheel drive, and requiring mechanical PTO operation with enhanced safety. Transmission where PTO disc is on the flywheel side.



Front PTO Shaft – Multiple Disc Clutch

Description:

The main components of this dry multiple disc clutch are the clutch housing, internal friction discs, internal separator plates and diaphragm spring. The multiple disc clutch is designed like a diaphragm spring clutch and is activated via a traditional release bearing system. The housing is driven directly by the engines crankshaft. The internal friction discs are internally splined which connect to the input shaft of the auxiliary front mounted reduction unit, this reduces the torque and is adjusted to the application requirements.

Characteristics:

Unlike an oil immersed clutch, the dry multiple disc clutch operates without an oil pump for lubrication. It is therefore less costly and needs less maintenance. Owing to the absence of fluid in the clutch, the dry multiple disc clutch has a lower drag torque than an oil immersed clutch. The drag torque in oil immersed clutches is generated by the fact that the rotation of the internal discs at engine torque causes the fluid to transmit torque to the external discs and, consequently, to the transmission even when the clutch is disengaged. In dry multiple disc clutches only small loads are transmitted by the air in between the discs, even with high speed differences in disengaged operation. It is for this reason that the multiple disc clutch does not require a power take off shaft stop which prevents the transmission shaft from rotating when the clutch is disengaged.



Applications:

As front power take off shaft clutch for CNH.



Organic and Sintered Discs

Description:

Organic friction is typically a moulded or woven fibre material. Copper or steel strands may be added to provide greater resistance to wear in increased torque situations. Sintered friction is sintered metals pressed into shape and then bonded. Both types of friction are used to transmit the torque from the engine to the transmission or PTO drive. Organic friction operates within a temperature range of 100–200°C with occasional short periods up to 350°C. Sintered friction can operate satisfactorily up to 400°C with occasional short periods up to 600°C. Compared to organic friction sintered friction has a higher co-efficient of friction which permits high torque transmission with lower clamp force. Clutch discs with a pre and main torsion damper are designed for specific applications, the damper has a characteristic wind up curve with up to 3 levels to provide effective damping under all conditions including engine idling, light and full load conditions. The design is especially suited to 3 cylinder engine where the engine cyclic irregularity can be particularly high.

Characteristics:

Owing to their characteristics features, organic linings are used for clutch discs with a relatively large diameter when low engine torque is transmitted. The application of organic linings is also subject to the main employment of the tractor. Sintered linings offer good resistance to wear and are designed to operate at much higher temperatures and particularly suit higher horse power tractors, especially those with four wheel drive and/or front loaders.

Applications:

Depending on the tractors main employment and clutch disc diameter for organic up to 100 kW and sintered up to 180 kW.



Clutch Discs with Increased Wear Reserve

Description:

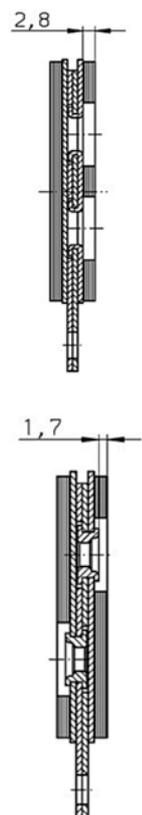
In this design, the sintered friction is fixed to the clutch disc carrier without rivets. Instead the sintered friction metal back plate is folded through the clutch disc carrier cushion segment to form the rivet from the backplate material. This unique process allows the full depth of the friction material to be used and a longer clutch service life to be obtained. A torsion damper ensures that the engines cyclic irregularity is not transmitted into the transmission, minimising noise and vibration. The sintered friction has a higher co-efficient of friction which permits high torque transmission with low spring clamp loads.

Characteristics:

Increased clutch service life due to full utilisation of the available friction material thickness. Smooth and progressive clutch engagement from the action of the cushion segments. Maximum reduction in transmission noise and vibration generated by engine cyclic irregularities. Increased airflow and resultant cooling from the paddle design of the sintered friction. Excellent tolerance of high temperature operation, up to 400°C continuous and 600°C intermittent. Low spring clamp loads result in lower clutch pedal operating loads and greater driver comfort.

Applications:

Tractors requiring a single, double, or safety PTO clutch up to 180 kW.





Guaranteeing comfort – LuK Torsion Dampers.

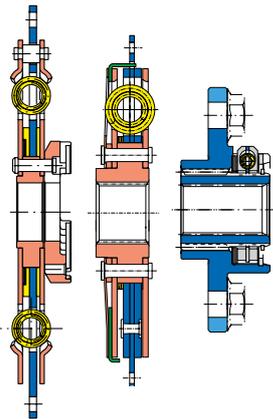
Axial Spring Dampers for Wheel and PTO Drives

Description:

Especially designed dry axial spring torsion dampers for direct mounting into the engines flywheel. Either the PTO or wheel drive transmission shafts can be driven from a flange or splined hub. A cardan shaft arrangement incorporating universal joints can be employed where the engine is mounted independently of the transmission, and misalignment tolerance is required. Where transmission noise is experienced from the PTO drive train at engine idle speeds, a specific damper is available for mounting within the engines flywheel in front of a conventional single disc clutch.

Characteristics:

Several designs based on standardised components permit optimised tuning of all engine / transmission characteristics to minimise wheel drive and PTO transmission noise under all vehicle operating conditions and mounting arrangements.



Applications:

Vehicles using a variety of engine and transmission arrangements including Power Shuttle, Semi and Full Power shift, C.V.T. and standard single dry clutch up to 400 kW.

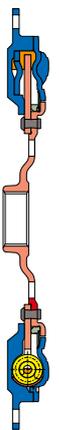
Long Travel Torsion Damper

Description:

The torsion damper has a primary side (blue) which is bolted into the engines flywheel and a secondary side (red) which is connected to the transmission input shaft through a splined hub or bolted flange. Long travel arc shaped springs are mounted between the primary and secondary sides. The arc springs are progressively compressed as engine torque increases. The especially long travel of the arc springs permits a soft and progressive wind-up curve to be established which is particularly effective in eliminating the engines cyclic irregularity. The pressed steel housing of the long travel torsion damper is laser welded during assembly. For extended durability and consistent performance the arc springs are encased in high performance lubricant, and run within, and against, hardened steel guides and stops.

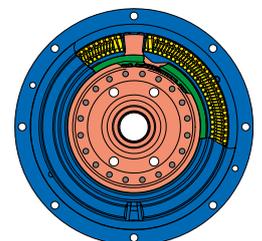
Characteristics:

A simple but rugged and durable component which very effectively eliminates transmission noise and vibration caused by cyclic irregularity in the drive train generated from the engine. Unloaded gear rattle at idle and throughout all load conditions can be eliminated. Substantial reduction in stress throughout the transmission due to the elimination of all resonances throughout the driveable speed range. Long life and consistent performance through sealed lubrication.



Applications:

Vehicles using a variety of engine and transmission arrangements including Power Shuttle, Semi and Full Power shift and C.V.T. up to 147 kW.





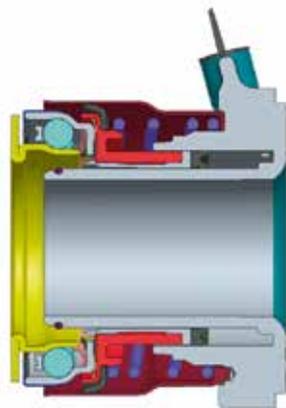
Hydraulic CSC Concentric Slave Cylinder

Description:

This combines the clutch slave cylinder and the traditional release bearing in one self adjusting component. The release bearing can move a small amount radially on its carrier to guarantee an optimal central position to the diaphragm fingertips of the diaphragm spring clutch when installed. This helps prevent wear in the diaphragm spring finger area.

Characteristics:

The CSC is a light weight compact design. Generally there are two different types of CSC depending on what type of fluid is used in the release systems of the vehicles, either mineral or vegetable based. These fluids are specific to different internal piston seals used. The CSC is self adjusting, it maintains constant light pressure to keep the bearing in contact with the clutch at all times. The CSC is more mechanically efficient than conventional cable or rod operated release systems.



Applications:

Tractors using single or split torque type clutches.
With power range from 20 to 130 kW.

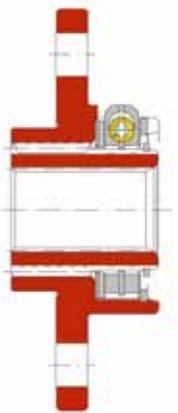
PTO Dampers

Description:

PTO idle axial spring torsion damper locates into the engines flywheel, Front PTO axial spring torsion damper locates in the external drive line on the front of the tractors engine. Both types of damper provide effective damping under light load and full load conditions.

Characteristics:

Robust compact construction flywheel mounted dampers, drive is transmitted from the engines flywheel through the outer carrier plate via an internal splined drive to the central hub. Coil springs are positioned between the carrier plate and central hub to dampen and reduce noise and vibrations produced by the engine into the PTO drive train of the tractor particularly at idle conditions. Externally mounted front dampers work in exactly the same way controlling noise and vibration in the drive line to external front mounted PTO drive systems, hydraulic motors or reduction units.



Applications:

Tractors up to 130 kW.

Further information:

www.schaeffler-aftermarket.com