Tilt Couplers System L-Lock 1-14t / *2,200-30,800lbs*

The Kinshofer TC Tilt Couplers provide a tilting angle of up to 180°, increasing the flexibiliy and efficiency of all attachments to a maximum. Compatible with quick coupling system L-Lock. The hydraulic versions are equipped with drop stop claws for additional safety.

- ▷ Compact design, **no cylinder.**
- ▷ **More flexibility.**
- ▷ **Low height –** thus **high breakaway force.**
- ▷ **Low maintenance.**
- ▷ Fully comply with all applicable national and international standards and regulations, including **Machinery Directive 2006/42/EG, DIN EN 474-1, DIN EN 474-5, ISO13031 and SUVA.**
- ▷ **Optionally available:** a double unlockable non-return valve mounted to the motor provides a safe position of the TC tilt coupler across all angles.
- ▷ Also available as a quick-delivery **TO GO►** product exclusively in our online shop! (only within EU) shop.kinshofer.com

TC045-180 KHS03L here with hook

Request? buc@kinshofer.com

Mechanic Tilt Couplers TC KMS-L

Type		Rotary drive	Tilt angle	Locking	Weight (kg/lbs)	Operating weight (t/lbs)
TC02-180 KMS01L	**TO GO►**	RA02	2 x 90°	mechanic	38 / 83.6	1.0 - 2.0 / 2,200 - 4,400
TC03-180 KMS03L	**TO GO►**	RA03	2 x 90°	mechanic	43 / 94.6	2.0 - 2.9 / 4,400 - 6,380
TC045-180 KMS03L	**TO GO►**	RA045	2 x 90°	mechanic	80 / 176	2.4 - 4.5 / 5,280 - 9,900
TC07-180 KMS03L	**TO GO►**	RA07	2 x 90°	mechanic	85 / 187	4.3 - 7.0 / 9,460 - 15,400
TC07-180 KMS08L	**TO GO►**	RA07	2 x 90°	mechanic	130 / 286	4.3 - 7.0 / 9,460 - 15,400
TC10-180 KMS08L	**TO GO►**	RA10	2 x 90°	mechanic	175 / 385	6.0 - 10.0 / 13,200 - 22,000
TC14-140 KMS08L		RA14	2 x 70°	mechanic	245 / 539	8.6 - 14.0 / 18,920 - 30,800

Package consists of: upper bracket, rotary drive, mechanic quick coupler, socket

Hydraulic Tilt Couplers TC KHS-L

Type		Rotary drive	Tilt angle	Locking	Weight (kg/lbs)	Operating weight (t/lbs)
TC02-180 KHS01L	**TO GO►**	RA02	2 x 90°	hydraulic	38 / 83.6	1.0 - 2.0 / 2,200 - 4,400
TC03-180 KHS03L	**TO GO►**	RA03	2 x 90°	hydraulic	43 / 94.6	2.0 - 2.9 / 4,400 - 6,380
TC045-180 KHS03L	**TO GO►**	RA045	2 x 90°	hydraulic	85 / 187	2.4 - 4.5 / 5,280 - 9,900
TC07-180 KHS03L HD	**TO GO►**	RA07	2 x 90°	hydraulic	90 / 198	4.3 - 7.0 / 9,460 - 15,400
TC07-180 KHS08L		RA07	2 x 90°	hydraulic	140 / 308	4.3 - 7.0 / 9,460 - 15,400
TC10-180 KHS08L	**TO GO►**	RA10	2 x 90°	hydraulic	180 / 396	6.0 - 10.0 / 13,200 - 22,000
TC14-140 KHS08L		RA14	2 x 70°	hydraulic	250 / 550	8.6 - 14.0 / 18,920 - 30,800

Package consists of: upper bracket, rotary drive, hydraulic quick coupler with drop stop claws

Technical data and hydraulics TC

Type	Breakout force max. (ISO) (kN/lbf)	Bucket width max. (mm/in)	Recommended oil flow rotate (l/min / GPM)	Hydraulic pressure rotate max. (bar/psi)
TC02-180	19 / 4,180	1,000 / 39.4	3 - 8 / 0.8 - 2.1	250 / 3,600
TC03-180	23 / 5,060	1,000 / 39.4	3 - 8 / 0.8 - 2.1	250 / 3,600
TC045-180	35 / 7,700	1,200 / 47.2	10 - 15 / 2.6 - 3.9	250 / 3,600
TC07-180	50 / 11,000	1,300 / 51.2	10 - 15 / 2.6 - 3.9	270 / 3,888
TC10-180	72 / 15,840	1,400 / 55.1	15 - 20 / 3.9 - 5.3	310 / 4,464
TC14-140	110 / 24,200	1,600 / 62.9	16 - 28 / 4.2 - 7.4	310 / 4,464

Requirements of carrier machine for TC KHS-L

	Quick coupler	Rotary drive
Hydraulic system:	one single acting hydraulic circuit up to TC045 one double acting hydraulic circuit from TC07 for further data, see quick coupler KHS-L	one double acting hydraulic circuit
Note:	excavator needs to be equipped with quick coupler control quick coupling systems of different manufacturers available	

TC02-180 KHS01L here with hook and open claws

TC10-180 KHS08L here with hook and closed claws

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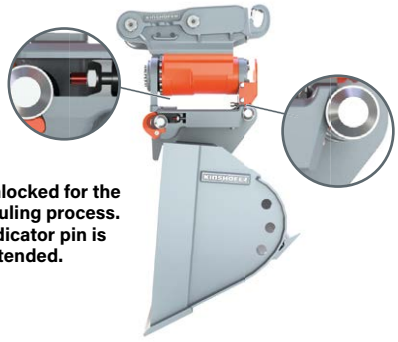
The TC L-Lock+ tilt couplers are characterized by a very high safety standard. The drop stop (extended quick coupler claw) prevents the attachment from falling down if the quick coupler lock is accidentally not closed properly, despite visual indication or warning signal. The newly developed indicator pin shows on the one hand the locking status when the bolts are in/out and on the other hand also when the locking bolts are above the approved range.

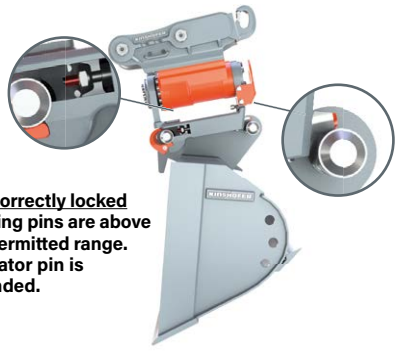
- **Drop Stop:** The quick coupler claw curls around the front pin of the quick change adaptor and prevents the attachment from unintenional disengagment.
- **Enormous safety:** Indicator pin shows only one correct condition of the coupling process and is independent of sensors or electronics.
- Fully comply with all applicable national and international standards and regulations, including **Machinery Directive 2006/42/EG, DIN EN 474-1, DIN EN 474-5, ISO13031 and SUVA.**
- **Optionally available:** a double unlockable non-return valve mounted to the motor provides a safe position of the TC tilt coupler across all angles.

TC07-180 KHS08L+ here with hook and open claws

Safely locked. Indicator pin is driven in.



Unlocked for the couling process. Indicator pin is extended.



<u>Not correctly locked</u> Locking pins are above the permitted range. Indicator pin is extended.

Hydraulic Tilt Couplers TC KHS-L+ (including drop stop & safe lock indicator)

Type	Rotary drive	Tilt angle	Locking	Weight (kg/lbs)	Operating weight (t/lbs)
TC02-180 KHS01L+	RA02	2 x 90°	hydraulic	39 / 85.8	1.0 - 2.0 / 2,200 - 4,400
TC03-180 KHS03L+	RA03	2 x 90°	hydraulic	44 / 96.8	2.0 - 2.9 / 4,400 - 6,380
TC045-180 KHS03L+	RA045	2 x 90°	hydraulic	86 / 189.2	2.4 - 4.5 / 5,280 - 9,900
TC07-180 KHS03L HD+	RA07	2 x 90°	hydraulic	91 / 200.2	4.3 - 7.0 / 9,460 - 15,400
TC07-180 KHS08L+	RA07	2 x 90°	hydraulic	142 / 312.4	4.3 - 7.0 / 9,460 - 15,400
TC10-180 KHS08L+	RA10	2 x 90°	hydraulic	182 / 400.4	6.0 - 10.0 / 13,200 - 22,000
TC14-140 KHS08L+	RA14	2 x 70°	hydraulic	252 / 554.4	8.6 - 14.0 / 18,920 - 30,800

Package consists of: upper bracket, rotary drive, hydraulic quick coupler, drop stop claws and lock indicator

Technical data and hydraulics TC

Type	Breakout force max. (ISO) (kN/lbf)	Bucket width max. (mm/in)	Recommended oil flow rotate (l/min / GPM)	Hydraulic pressure rotate max. (bar/psi)
TC02-180	19 / 4,180	1,000 / 39.4	3 - 8 / 0.8 - 2.1	250 / 3,600
TC03-180	23 / 5,060	1,000 / 39.4	3 - 8 / 0.8 - 2.1	250 / 3,600
TC045-180	35 / 7,700	1,200 / 47.2	10 - 15 / 2.6 - 3.9	250 / 3,600
TC07-180	50 / 11,000	1,300 / 51.2	10 - 15 / 2.6 - 3.9	270 / 3,888
TC10-180	72 / 15,840	1,400 / 55.1	15 - 20 / 3.9 - 5.3	310 / 4,464
TC14-140	110 / 24,200	1,600 / 62.9	16 - 28 / 4.2 - 7.4	310 / 4,464

Requirements of carrier machine for TC KHS-L+

	Quick coupler	Rotary drive
Hydraulic system:	one single acting hydraulic circuit up to TC045 one double acting hydraulic circuit from TC07 for further data, see quick coupler KHS-L	one double acting hydraulic circuit
Note:	excavator needs to be equipped with quick coupler control quick coupling systems of different manufacturers available	

Drop Stop locked

Drop Stop unlocked

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Tilt Couplers System L-Lock 8.6-23t / *18,920-50,600lbs* TC L-Lock

The Kinshofer TC Tilt Couplers provide a tilting angle of up to 140°, increasing the flexibiliy and efficiency of all attachments to a maximum. Compatible with quick coupling system L-Lock. The hydraulic versions are equipped with drop stop claws for additional safety.

- ▷ Fully comply with all applicable national and international standards and regulations, including **Machinery Directive 2006/42/EG, DIN EN 474-1, DIN EN 474-5, ISO13031 and SUVA.**
- ▷ **Counter-balance valve** mounted to the motor **retains a secure position** for the tilt coupler across the angle.
- ▷ Compact design, **no cylinder.**
- ▷ **More flexibility.**
- ▷ **Low height –** thus **high breakaway force.**
- ▷ **Low maintenance.**
- ▷ **Non-return valve set** is **optionally** available.

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Mechanic Tilt Couplers TC KMS-L

Type	Rotary drive	Tilt angle	Locking	Weight (kg/lbs)	Operating weight (t/lbs)
TC14-140 KMS10L	RA14	2 x 70°	mechanic	315 / 693	8.6 - 14 / 18,920 - 30,800
TC19-140 KMS10L	RA19	2 x 70°	mechanic	470 / 1,034	12.1 - 19 / 26,620 - 41,800
TC23-140 KMS21L	RA23	2 x 70°	mechanic	630 / 1,386	16.7 - 23 / 36,740 - 50,600

Package consists of: upper bracket, rotary drive, mechanic quick coupler, socket

Hydraulic Tilt Couplers TC KHS-L (incl. drop stop)

Type	Rotary drive	Tilt angle	Locking	Weight (kg/lbs)	Operating weight (t/lbs)
TC14-140 KHS10L	RA14	2 x 70°	hydraulic	315 / 693	8.6 - 14 / 18,920 - 30,800
TC19-140 KHS10L	RA19	2 x 70°	hydraulic	470 / 1,034	12.1 - 19 / 26,620 - 41,800
TC23-140 KHS21L	RA23	2 x 70°	hydraulic	630 / 1,386	16.7 - 23 / 36,740 - 50,600

Package consists of: upper bracket, rotary drive, hydraulic quick coupler with drop stop claws

Installation sets for hydraulic Tilt Couplers TC KHS-L

Type	Description
KHS10L installation set safety	incl. KHS Control unit
KHS10L installation set basic	incl. unlockable flip switch
KHS21L installation set safety	incl. KHS Control unit
KHS21L installation set basic	incl. unlockable flip switch
TC14-140 NRV	non-return valve kit for TC14-140
TC19-140 NRV	non-return valve kit for TC19-140
TC23-140 NRV	non-return valve kit for TC23-140

Accessories

Type	Description
KM 685 06 KSW10 hook	load hook (8t/17,600lbs load capacity)
KMS10L socket	socket
KM 685 06 KSW21 hook	load hook (10t/22,000lbs load capacity)
KMS21/25L socket	socket
KSW10 rigid	bolt-on adapter
KSW10 cardanic	adapter for cardanic suspension incl. suspension, w/o pendulum damper
KSW21/25 rigid	bolt-on adapter
KSW21/25 cardanic	adapter for cardanic suspension incl. suspension, w/o pendulum damper

Technical data and hydraulics TC

Type	Breakout force max. (ISO) (kN/lbf)	Bucket width max. (mm/in)	Recommended oil flow rotate (l/min / GPM)	Hydraulic pressure rotate max. (bar/psi)
TC14-140	110 / 24,200	1,600 / 62.9	16 - 28 / 4.2 - 7.4	310 / 4,464
TC19-140	150 / 33,000	1,700 / 66.9	26 - 35 / 6.8 - 9.2	310 / 4,464
TC23-140	170 / 37,400	2,000 / 78.7	26 - 35 / 6.8 - 9.2	310 / 4,464

Requirements of carrier machine for TC KHS-L

	Quick coupler	Rotary drive
Hydraulic system:	one double acting hydraulic circuit for further data, see quick coupler KHS-L	one double acting hydraulic circuit
Note:	excavator needs to be equipped with quick coupler control quick coupling systems of different manufacturers available	

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Tilt Couplers System L-Lock 8.6-23t / *18,920-50,600lbs* TC L-Lock+

The TC L-Lock+ tilt couplers are characterized by a very high safety standard. The drop stop (extended quick coupler claw) prevents the attachment from falling down if the quick coupler lock is accidentally not closed properly, despite visual indication or warning signal. The newly developed indicator pin shows on the one hand the locking status when the bolts are in/out and on the other hand also when the locking bolts are above the approved range.

- **Drop Stop:** The quick coupler claw curls around the front pin of the quick change adaptor and prevents the attachment from unintenional disengagment.
- **Enormous safety:** Indicator pin shows only one correct condition of the coupling process and is independent of sensors or electronics.
- Fully comply with all applicable national and international standards and regulations, including **Machinery Directive 2006/42/EG, DIN EN 474-1, DIN EN 474-5, ISO13031 and SUVA.**
- **Optionally available:** a double unlockable non-return valve mounted to the motor provides a safe position of the TC tilt coupler across all angles.

here with load hook

Request? buc@kinshofer.com

Hydraulic Tilt Couplers TC KHS-L+ (including drop stop & sensors)

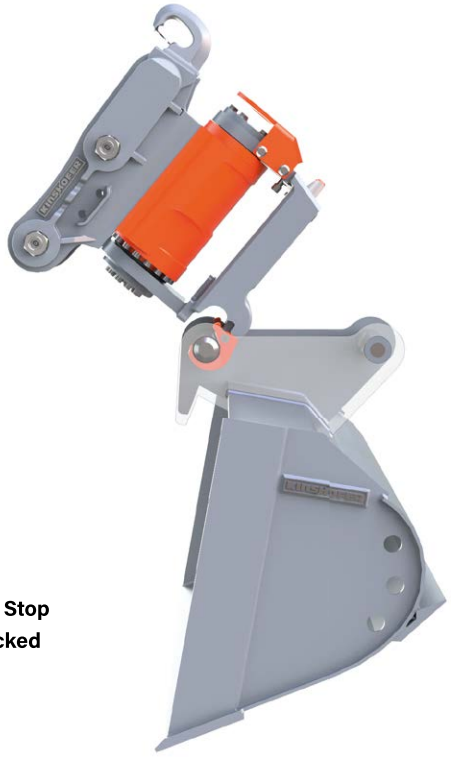
Type	Rotary drive	Tilt angle	Locking	Weight (kg/lbs)	Operating weight (t/lbs)
TC14-140 KHS10L+	RA14	2 x 70°	hydraulic	319 / 702	8.6 - 14 / 18,920 - 30,800
TC19-140 KHS10L+	RA19	2 x 70°	hydraulic	479 / 1,054	12.1 - 19 / 26,620 - 41,800
TC23-140 KHS21L+	RA23	2 x 70°	hydraulic	639 / 1,406	16.7 - 23 / 36,740 - 50,600

Package consists of: upper bracket, rotary drive, hydraulic quick coupler, drop stop claws, KHS10-25L installation set sensor, KHS-L-Sensor

Requirements of carrier machine for TC KHS-L+

	Quick coupler	Rotary drive
Hydraulic system:	one double acting hydraulic circuit for further data, see quick coupler KHS-L	one double acting hydraulic circuit for further data, see tilt coupler TC L-Lock
Note:	excavator needs to be equipped with quick coupler control quick coupling systems of different manufacturers available	

Drop Stop locked



Drop Stop unlocked

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Accessories for Quick Couplers, Tilt Couplers and Rotary Couplers

unlockable flip switch (hold to run)

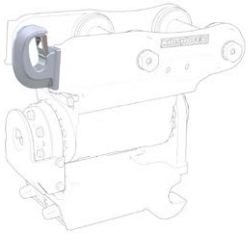
KHS Control

Installations sets for hydraulic quick couplers and tilt couplers

Type	Description
KHS01L-KHS03L installation set safety	incl. KHS Control unit
KHS01L-KHS03L installation set basic	incl. unlockable flip switch (hold to run)
KHS03L HD-KHS08L installation set safety	incl. KHS Control unit
KHS03L HD-KHS08L installation set basic	incl. unlockable flip switch (hold to run)

Non-return valve sets for hydraulic tilt couplers TC

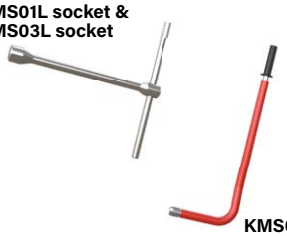
Type	Description
TC02-TC03-180 NRV	non-return valve set for TC02 and TC03
TC045-180 NRV	non-return valve set for TC045
TC07-180 NRV	non-return valve set for TC07
TC10-180 NRV	non-return valve set for TC10
TC14-140 NRV	non-return valve set for TC14



Load hook for quick couplers and tilt couplers

Type	Description
KM 685 06 KSW01 hook	load hook for system L-Lock (1t / 2,200lbs load capacity)
KM 685 06 KSW03 hook 2t	load hook for system L-Lock (2t / 4,400lbs load capacity)
KM 685 06 KSW03 hook 3t	load hook for system L-Lock (3t / 6,600lbs load capacity)
KM 685 06 KSW08 hook	load hook for system L-Lock (5t / 11,000lbs load capacity)

KMS01L socket & KMS03L socket



KMS08L socket

Sockets for mechanic quick couplers and tilt couplers

Type	Description
KMS01L socket	socket for mechanical System L-Lock (KMS01)
KMS03L socket	socket for mechanical System L-Lock (KMS03)
KMS08L socket	socket for mechanical System L-Lock (KMS08) and S-Lock

Quick coupling adapters for System L-Lock

Type	Description
KSW01 rigid	bolt-on adapter
KSW01 cardanic	adapter for cardanic suspension incl. suspension, w/o pendulum damper
KSW03 rigid	bolt-on adapter
KSW03 cardanic	adapter for cardanic suspension incl. suspension, w/o pendulum damper
KSW08 rigid	bolt-on adapter
KSW08 cardanic	adapter for cardanic suspension incl. suspension, w/o pendulum damper

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unlockable flip switch (hold to run)

KHS Control

Installations sets for hydraulic quick couplers and tilt couplers

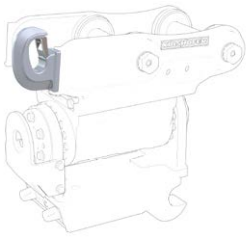
Type	Description
KHS03L HD-KHS08L installation set safety	incl. KHS Control unit
KHS03L HD-KHS08L installation set basic	incl. unlockable flip switch (hold to run)
KHS10L installation set safety	incl. KHS Control unit
KHS10L installation set basic	incl. unlockable flip switch (hold to run)
KHS21L installation set safety	incl. KHS Control unit
KHS21L installation set basic	incl. unlockable flip switch (hold to run)
KHS25L installation set safety	incl. KHS Control unit
KHS25L installation set basic	incl. unlockable flip switch (hold to run)

Locking sensor for hydraulic quick couplers and tilt couplers with System L-Lock

Type	Description
KHS-L-Sensor	2 sensors support the secure locking, only in combination with KHS10-25L installation set sensor
KHS10-25L installation set sensor	KHS-L installation set safety including cable loom for quick coupler sensors

Non-return valve sets for hydraulic tilt couplers TC

Type	Description
TC14-140 NRV	non-return valve set for TC14-140
TC19-140 NRV	non-return valve set for TC19-140
TC23-140 NRV	non-return valve set for TC23-140



Load hook for quick couplers and tilt couplers

Type	Description
KM 685 06 KSW10 hook	load hook (8t/17,600lbs load capacity)
KM 685 06 KSW21 hook	load hook (10t/22,000lbs load capacity)
KM 685 06 KSW25 hook	load hook (18t/39,600lbs load capacity)

Sockets for mechanic quick couplers and tilt couplers

Type	Description
KMS10L socket	socket for mechanical System L-Lock (KMS10L)
KMS21/25L socket	socket for mechanical System L-Lock (KMS21L/KMS25L)
KMS08L socket	socket for mechanical System S-Lock

Quick coupling adapters for System L-Lock

Type	Description
KSW10 rigid	bolt-on adapter
KSW10 cardanic	adapter for cardanic suspension incl. suspension, w/o pendulum damper
KSW21/25 rigid	bolt-on adapter
KSW21/25 cardanic	adapter for cardanic suspension incl. suspension, w/o pendulum damper

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