Rel. 20210721

Torque Meter LR-*Cal* LFC 80 - bench type
e.g. for calibration of torque wrenches

USB 2.0

- Ranges from 0...0.5 Nm to 0...2000 Nm
- You can select from 9 torque measuring units
- Accuracy ±0.20% FS
- Incl. ACCREDIA (DAkkS) certificate *) from 1/10 of range for clockwise direction
  Total uncertainty ≤1% FS
  Optional additional ACCREDIA (DAkkS) certificate *) for counter-clockwise direction
- PEAK function for exact detection of the „snap-point“ (clockwise and counter-clockwise direction)
- Programmable „First Peak“ detection
- Optional: with data logging function

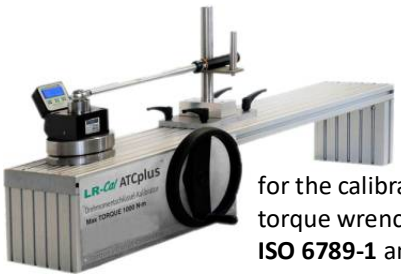
*) Ranges 0...0.5 Nm and 0...2.5 Nm: incl. factory certificate of calibration.

The **LR-*Cal* LFC 80** is a torque bench for static measurements, composed of a digital indicator and a strain gauge torque, extremely rugged and compact with a precision better than 0.20%.
It is ideal for the calibration and control of torque wrenches, screwdrivers, direct reading and snap.
The indicator is powerd by a Li-Ion rechargeable battery with an automomy of 80 hours, with the AUTO POWER OFF function, which occurs when there are not changes in measurements for a programmable period of time.

It allows in static mode a very high resolution and in PEAK mode an acquisition frequency of 4800 Hz (4800 measurements per second).

The instrument and PEAK functions are working in clockwise direction as well as in counter-clockwise direction.

The display of the **LR-*Cal* LFC 80** can be rotated by 90° to be able to work both, horizontally and vertivally (using the optional 90° bracket) .
The device is equipped with an USB 2.0 interface with a transmission rate of 4800 values per second in PEAK mode. A programmable „First PEAK“ function makes it easy to avoid mistakes during calibration of torque wrenches.



for the calibration of torque wrenches as per **ISO 6789-1** and **ISO 6789-2**

LR-*Cal* LFC 80 in mechanical support, code **LFC-ATC-1000-PLUS**

LR-*Cal* LFC 80 in optional case, code **LFC-KOFFER**

Архангельск (8182)63-90-72
Астана (7172)727-132
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93
Киргизия (996)312-96-26-47
Россия (495)268-04-70
Казахстан (772)734-952-31

LFC 80 Torque Meter - bench type LR-*Cal* LFC 80
Calibration ranges 0.5 to 2000 Nm

LR-*Cal*

Available pressure ranges:

Order-Code **LFC80-8050**: 0...0.5 Nm
Order-Code **LFC80-0002**: 0...2.5 Nm
Order-Code **LFC80-0005**: 0...5 Nm
Order-Code **LFC80-0010**: 0...10 Nm
Order-Code **LFC80-0025**: 0...25 Nm
Order-Code **LFC80-0050**: 0...50 Nm
Order-Code **LFC80-0100**: 0...100 Nm
Order-Code **LFC80-0250**: 0...250 Nm
Order-Code **LFC80-0500**: 0...500 Nm
Order-Code **LFC80-1000**: 0...1000 Nm
Order-Code **LFC80-2000**: 0...2000 Nm

Technical Data:

Total uncertainty acc. EURAMET cg-14:	1% (from 10% to 100% of the range)
Linearity and hysteresis:	≤±0.20% FS
Internal resolution:	24 bit
Normal mode measuring rate:	10 measurements per second
PEAK mode measuring rate:	4800 measurements per second
Reference temperature:	23°C
Operating temperature:	0...50°C
Storage temperature:	-10...+60°C
Temperature influence per 10°C:	zero point: ≤±0.015% sensitivity: ≤±0.005%
Display (LCD): Figure height 16 mm Backlight 1...60 sec. Programmable Colour of backlight:blue additional analogue bargraph indication	
Programmable resolution:	1, 2, 5, 10
Programmable digital filter:	von 0 bis 10 (im Normalmodus)
ZERO function:	working up to 100% FS
PEAK function:	Clockwise and counter-clockwise direction
Programmable "First PEAK" function:	from 1 to 99% FS
Programmable PEAK Auto-Reset:	Deletes PEAK values after programmable period of time
Auto POWER OFF function:	from 1 to 30 min, if measured value remains unchanged
Key Block function:	Avoids parameter changements by unauthorised personnel
Measuring units (torque):	kNm, Nm, Ncm, daNm, kgf m, ozf ft, lbf ft, ozf inch, lbf inch
Communication interface:	USB 2.0
Continuous transmission via USB:	4800 values per second
Data transmission:	On request (key press)
Max. USB cable length:	5 meters
Power supply:	Built-in chargeable Li-Ion battery size 14500 3,6 V
Battery charging:	via USB interface
Typ. operating time when fully charged:	approx. 80 hous
Typical charging time:	approx. 8 hours
Mechanical connection ISO 1174-1:	Square (female)
Ranges 0,5 / 2,5 / 5 / 10 Nm:	1/4"
Ranges 25 / 50 Nm:	3/8"
Ranges 100 / 250 Nm:	1/2"
Ranges 500 / 1000 Nm:	3/4"
Range 2000 Nm:	1"
Max. working load:	up to 100% FS
Max. overload limit:	up to 150% FS
Burst load:	>300% FS
Housing protection degree:	IP 40 acc. EN 60529
Housing material:	Aluminium and steel, black coated
Sensor material:	Stainless steel 17-4 PH

Display Resolutions:

Nominelles Drehmoment / Nominal Torque		Anzeige Display	Auflösung Resolution	Anzeige Display	Auflösung Resolution	Anzeige Display	Auflösung Resolution	Anzeige Display	Auflösung Resolution	Anzeige Display	Auflösung Resolution
Artikel / Code	Nm	Nm		kNm		Ncm		daNm		kgf m	
LFC80-8050	0,5	0,5000	0,0001	0,0005	0,0001	50,000	0,010	0,0500	0,0001	0,0500	0,0001
LFC80-0002	2,5	2,5000	0,0005	0,0025	0,0001	250,00	0,052	0,2500	0,0001	0,2500	0,0001
LFC80-0005	5	5,000	0,001	0,0050	0,0001	500,00	0,10	0,5000	0,0001	0,5000	0,0001
LFC80-0010	10	10,000	0,002	0,0100	0,0001	1000,0	0,2	1,0000	0,0002	1,0000	0,0002
LFC80-0025	25	25,000	0,005	0,0250	0,0001	2500,0	0,5	2,5000	0,0005	2,5000	0,0005
LFC80-0050	50	50,00	0,01	0,0500	0,0001	5000,0	1,0	5,0000	0,0010	5,0000	0,0010
LFC80-0100	100	100,00	0,02	0,1000	0,0001	10000	2	10,000	0,002	10,000	0,002
LFC80-0250	250	250,00	0,05	0,2500	0,0001	25000	5	25,000	0,005	25,000	0,005
LFC80-0500	500	500,0	0,1	0,5000	0,0001	50000	10	50,000	0,010	50,000	0,010
LFC80-1000	1000	1000,0	0,2	1,0000	0,0002	---	---	100,00	0,02	100,00	0,02
LFC80-2000	2000	2000,0	0,5	2,0000	0,0005	---	---	200,00	0,05	200,00	0,05

Nominelles Drehmoment / Nominal Torque		Anzeige Display	Auflösung Resolution	Anzeige Display	Auflösung Resolution	Anzeige Display	Auflösung Resolution	Anzeige Display	Auflösung Resolution
Artikel / Code	Nm	ozf ft		lbf ft		ozf inch		lbf inch	
LFC80-8050	0,5	5,9000	0,0020	0,4000	0,0001	71,000	0,020	5,000	0,001
LFC80-0002	2,5	29,500	0,010	2,0000	0,0005	355,00	0,10	25,000	0,005
LFC80-0005	5	59,000	0,020	4,0000	0,0010	710,00	0,20	50,000	0,010
LFC80-0010	10	118,00	0,05	8,0000	0,0020	1420,0	0,5	100,00	0,05
LFC80-0025	25	295,00	0,10	20,000	0,005	3550,0	1,0	250,00	0,05
LFC80-0050	50	590,00	0,20	40,000	0,010	7100,0	2,0	500,0	0,1
LFC80-0100	100	1180,0	0,5	80,000	0,020	14200	5	1000,0	0,2
LFC80-0250	250	2950,0	1,0	200,00	0,05	35500	10	2500,0	0,5
LFC80-0500	500	5900,0	2,0	400,00	0,1	71000	20	5000,0	1,0
LFC80-1000	1000	11800	5	800,00	0,2	---	---	10000	2
LFC80-2000	2000	323600	5	1600,0	0,5	---	---	20000	5

Options (extra charge):

Code **LFC80-DLOG**

Datenlogger-Funktion, kann in zwei Modi arbeiten:
- Automatisch: Zyklische Aufzeichnung (programmierbar 1 s bis 10 h) im Normalmodus
- Manuell: Aufzeichnung auf Tastendruck im PEAK-Modus

60.000 Messwerte Kapazität, integrierte Echtzeituhr YY-MM-DD-HH-MM-SS
Die aufgezeichneten Messwerte können am Gerät angezeigt werden oder via USB an einen PC/Laptop übertragen werden (mit optionaler Software).

Code **LFC80-RS232**

If distance between LR-*Cal* **LFC 80** and PC/Laptop is larger than 5 m, the optional RS232 interface is to be used (max. 15 m cable length).
RS232C, 19200, 9600 or 4800 baud, transmission on software command,
connection DB9 female on backside of housing. Cable code **LFC-RS232-KAB** recommended.

Code **LFC-RS232-USB**

USB-/RS232 converter for connection to PC/Laptop.

Code **LFC-HALTER**

Bracket 90° for vertical mounting

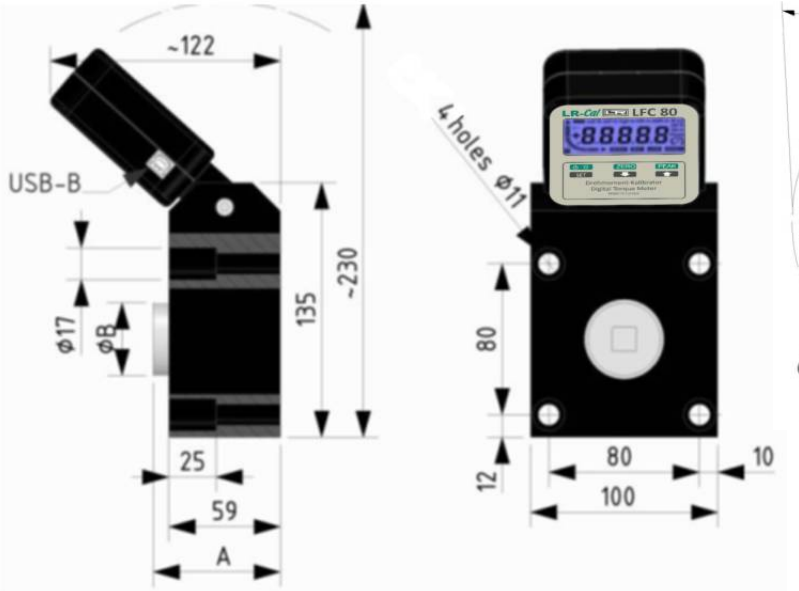
Code **LFC80-KOFFER**

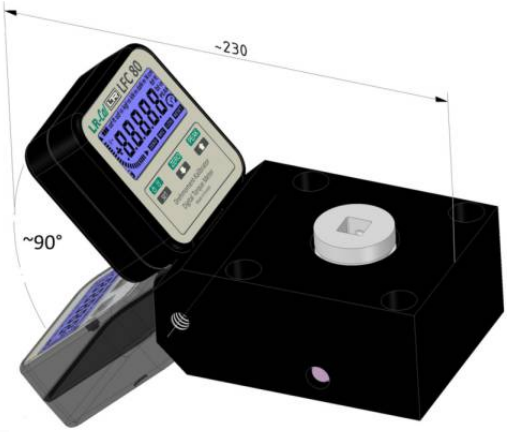
Transit case with custom foams

Code **LFC80-L-AZERT**

For ranges >2.5 Nm: ACCREDIA (DAkkS) certificate for counter-clockwise direction
(Such certificate for clockwise direction is included in scope of standard delivery)

Dimensions:

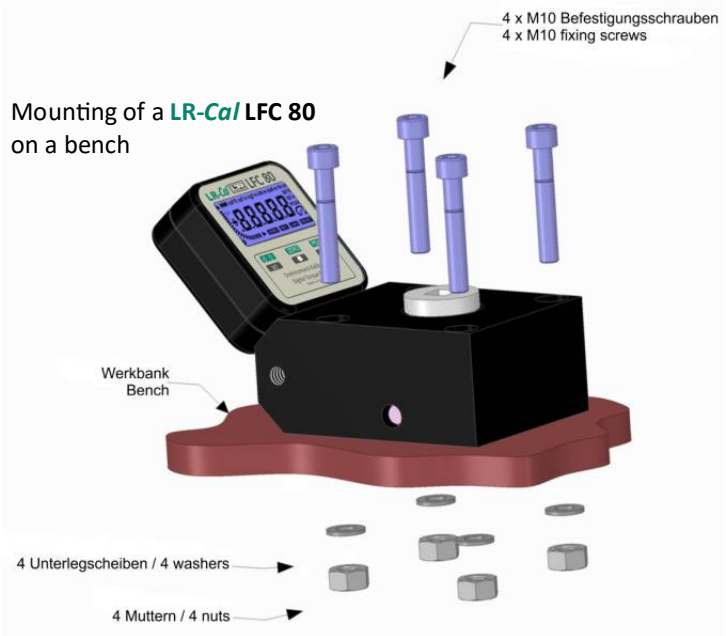




The display is adjustable in a range of about 90°.

For vertical mounting use the optional 90° bracket Order-Code **LFC-HALTER**

Mounting of a LR-*Cal* **LFC 80** on a bench

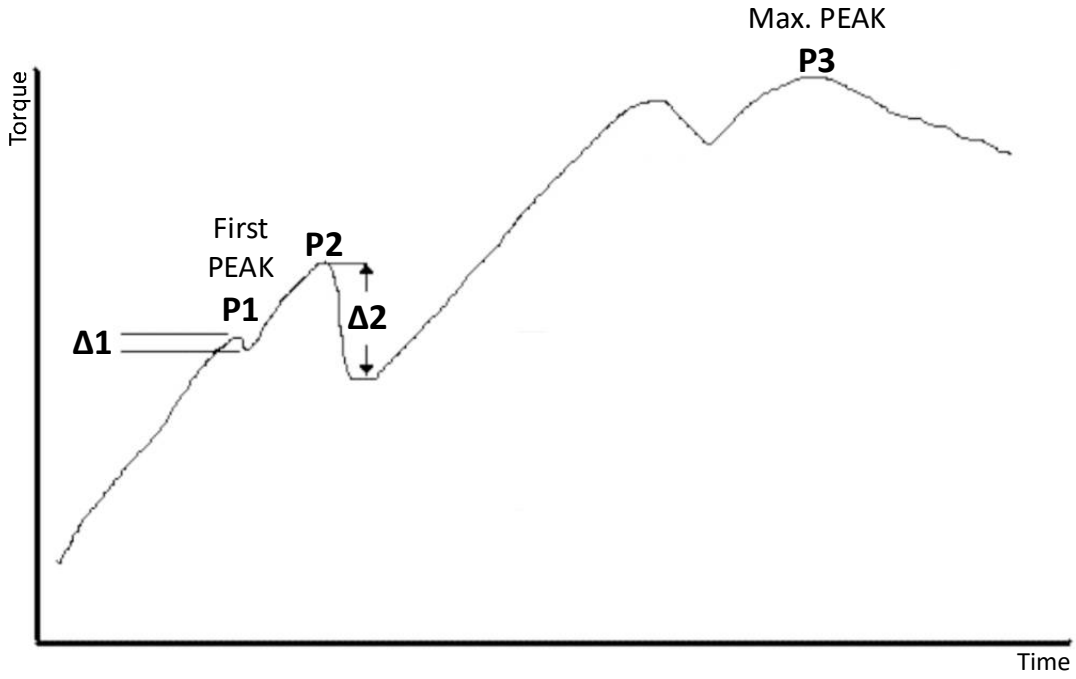


USB cable and
USB charger are included in scope of standard delivery.

Explanation of the „First PEAK“ function:

The „First PEAK“ function keeps on the display the first PEAK hooked, even if subsequently the torque increases. This feature helps the inexperienced operator in the calibration of torque wrenches, because it keeps displayed the correct PEAK torque value, even if the operator inadvertently does not stop and continues to act on the torque wrench doing increase torque. Using this feature, the measure is more repeatable and less influenced by the operator, especially when keys are used with very low shooting angle.

If the„First PEAK“ detection is activated, the value P3 is not considered as PEAK value, and also not value P1, because the decreasing torque Δ1 after value P1 is less than the previously in the LR-*Cal* **LFC 80** instrument predefined threshold value.
Torque value **P2** is taken as PEAK value, because the decreasing torque value Δ2 after value P2 is larger than the previously in the LR-*Cal* **LFC 80** instrument predefined threshold value.



Checking and Calibration of Torque Wrenches

according to norm ISO 6789-1 and ISO 6789-2:2017

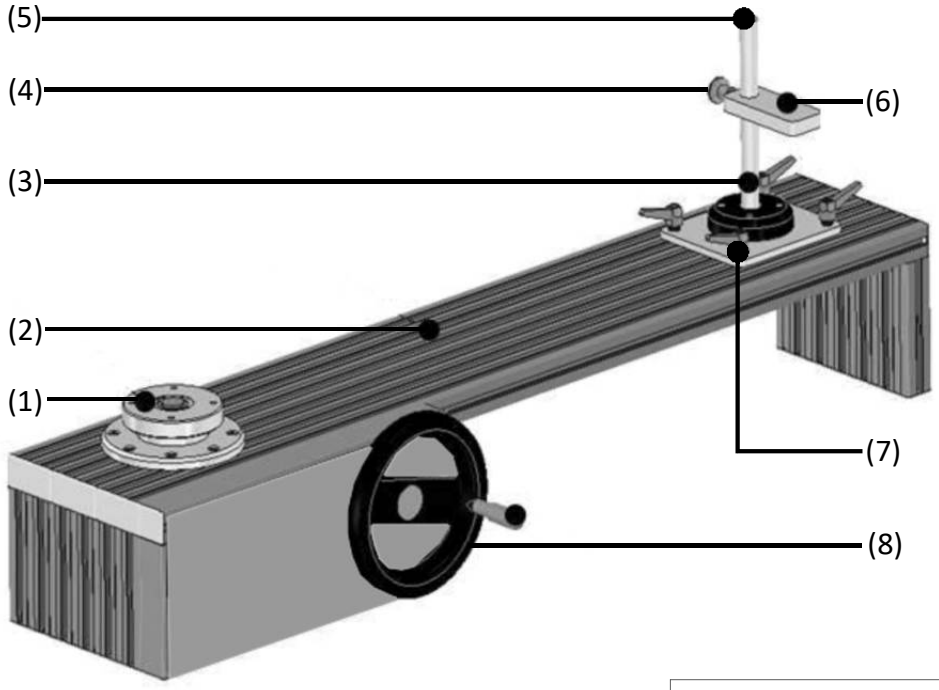
For a constant and repeatable calibration of torque wrenches we recommend the optional mechanical support LR-*Cal* **LFC-ATCplus.**

LR-*Cal* LFC-ATCplus manual drive

According to the standard, the calibration of torque wrenches must be performed every 12 months or every 5000 tightenings.
To better perform this operation the LR-*Cal* **LFC-ATCplus** is designed in compliance with all the requirements of ISO 6789-1 and ISO 6789-2:2017 norms.
The support consists of a load-bearing structure made with an extruded aluminium profile, a combined reducer for manual generation and constant maintenance of torque, a trolley with adjustable reaction system to adapt to the key length and a the series of LR-*Cal* **LFC 80** calibrators.
The main advantages of using the optional LR-*Cal* **LFC-ATCplus** are:

- Calibration system compliant with ISO 6789-1 and ISO 6789-2:2017.
- Extreme ease of use.
- Reduction of calibration times.
- Minimum physical effort of the operator.
- Increased repeatability of the torque wrench.
- Gradual generation of the torque in compliance with the standard.
- Constant torque maintenance by reduction gear.
- Adjustable reaction system to reduce unwanted displacements and lateral forces.
- During calibration the reaction system keeps the torque application point constant.
- Rotation of the unit under test guarantees the application of the torque at an angle of 90° with respect to the torque wrench.

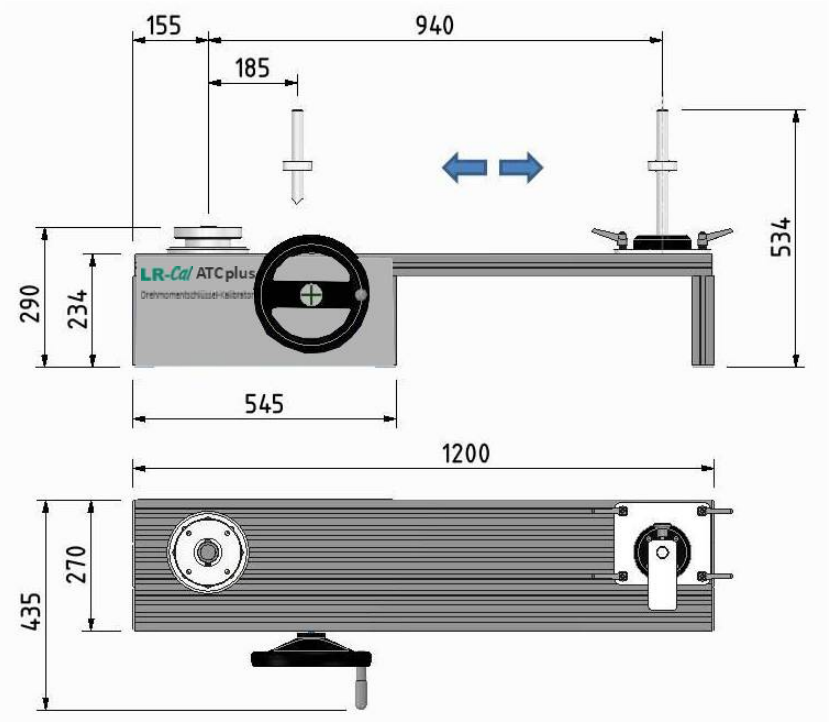
Code **LFC-ATC-1000-PLUS** for torques up to 1000 Nm, incl. 1 base plate for 1 LR-*Cal* **LFC 80**
Code **LFC-ATC-2000-PLUS** for torques up to 2000 Nm, incl. 1 base plate for 1 LR-*Cal* **LFC 80**



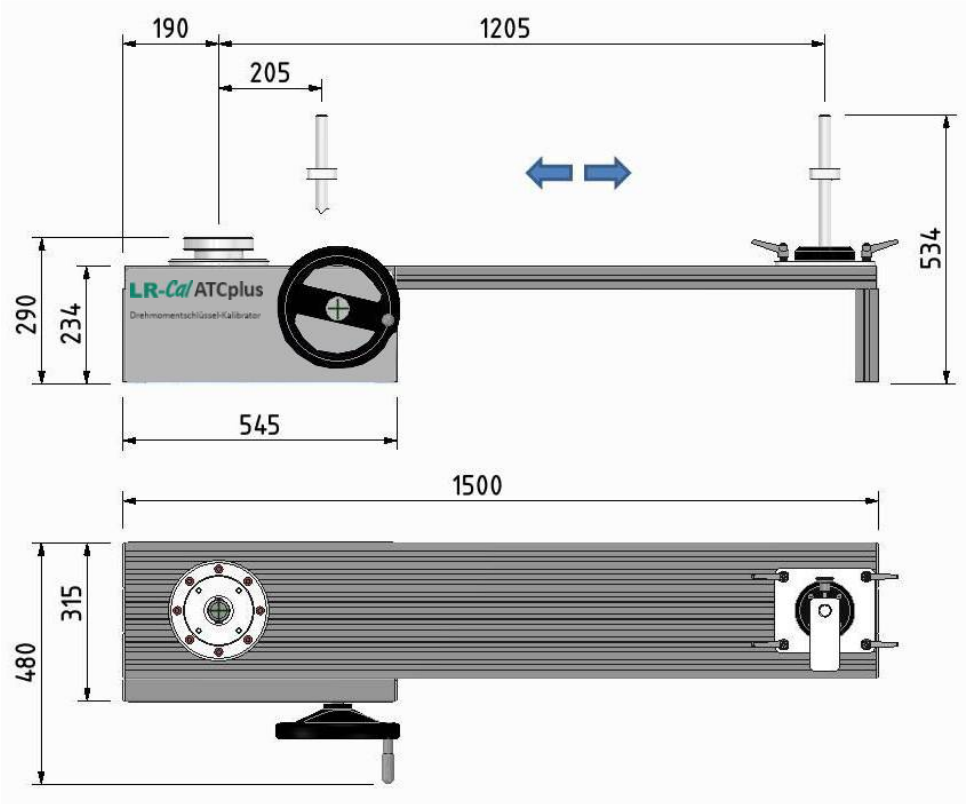
(1) = Rotary plate with fixing for LR-*Cal* **LFC 80** (reference)
(2) = Supporting structure with Rexroth aluminium profile
(3) = Saddle with reaction system
(4) = Fixing knob
(5) = Reaction shaft
(6) = Support plate and torque wrench adjustment
(7) = Adjustable handle
(8) = Hand wheel for the generation of torque

To guarantee a fast switch of the LR-*Cal* **LFC 80** in the LR-*Cal* **LFC-ATCplus**, we recommend to use additional plates order-code **LFC-ATC-PLUS-PLATTE** for every further LR-*Cal* **LFC 80** instrument.

Dimensions LR-*Cal* LFC-ATCplus - up to 1000 kN Order-Code LFC-ATC-1000-PLUS (in mm)



Dimensions LR-*Cal* LFC-ATCplus - up to 2000 kN Order-Code LFC-ATC-2000-PLUS (in mm)



LFC 80

Torque Meter - bench type LR-*Cal* LFC 80
Calibration ranges 0.5 to 2000 Nm

See also: Precision handheld **LR-*Cal* LHM** with external torque sensor **TRS**

Ranges 0.5 Nm, 2,5 Nm, 5 Nm, 10 Nm,
25 Nm, 50 Nm, 100 Nm, 250 Nm, 500 Nm
or 1000 Nm.

Accuracy ±0.2% or optional ±0.1%.

Further information: datasheet „LHM“.