Dual-circuit power brake valve LT 07

RE 66146
Edition: 08.2012
Replaces: 07.2011

HAD 4597

- Component series 2X
- Service brake pressure 60, 80, 100 and 120 bar

Features

- Small installation dimensions
- Integrated maximum pressure limitation of the brake circuits
- Brake pressure proportional to actuation force
- Synchronisation through low hysteresis
- All consumer ports on one side
- Optimal piping by freely swivelling fixing flange
- External brake pressure return possible
- Ergonomic adaption of the pedal blade angle possible
- All pedal variations with slip resistant, removable rubber plates

Contents

Ordering code

01	02		03		04		05	06	07	08
LT 07	**MKA**	**–**	**2X**	**/**		**/**	**02**	**M**		*****

01	Model code LT 07	**LT 07**

02	Version MKA	**MKA**

Component series

03	20 to 29 (unchanged installation and connection dimensions)	**2X**

Service brake pressure

04	60 bar	**060**
	80 bar	**080**
	100 bar	**100**
	120 bar	**120**

Line connections

05	Metric threads according to DIN 3852-1 (see table on page 6)	**02**

Seal material

06	NBR seals, suitable for mineral oil (HL, HLP) according to DIN 51524	**M**[1)]

Accessories

07	Without	**–**
	Fitted with a standard brake pedal LT 19	**12**

08	Further details in clear text	*****

Preferred standard types

Pressure stage [bar]	**LT 07 without pedal Part no.**	**LT 07 with fitted standard pedal Part no.**
060	R900900612	R900900334
080	R900907143	R900904638
100	R900905251	R900904622
120	R900907144	R900907145

1) Observe sealing compatibility of the hydraulic fluid used!

Function

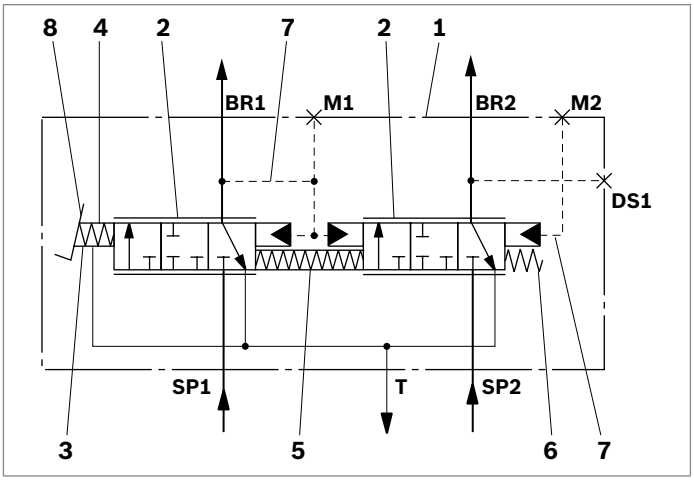
The dual-circuit remotely powered brake valve LT 07 is a directly operated pressure reducing valve in three-way design with stepless mechanical operation.
It has a maximum pressure relief of secondary circuits and infinitely adjustable pressure in the secondary circuits (braking circuits) which is in proportion to the travel of the operating element (**4**) or to the actuation travel angle of the pedal (**8**).
With the failure of one brake circuit the second brake circuit remains fully functional due to the mechanical contact of both spools (**2**). The actuation force at the pedal remains unchanged.
The dual-circuit remotely powered brake valve consists mainly of the housing (**1**) and control spool (**2**), main compression springs (**3**), operating element (**4**) and the return springs (**5**) and (**6**). The valve is operated via the operating element (**4**). This pushes the main compression springs (**3**) against both control spools (**2**). Firstly the control edges closes at channel **T**, afterwards the flow from **SP** to **BR** is released in both braking circuits.
The pressure building up in the brake lines pushes simultaneously via the brake pressure returns (**7**) behind the control spool against the main compression spring (**3**) so that the brake pressure (secondary pressure) rises in proportion to the deflection of the operating element (**4**). With the deflection of the operating element kept constant, the control spool (**2**) moves into the control position and holds the defined pressure in channels **BR1** and **BR2** constant. Thereby the pressure in **BR1** is only approx. 2 bar higher than in **BR2**. The actuation force of the operating element is therefore proportional to its deflection.

When the main compression springs (**3**) are unloaded, the return springs move the control spools back to initial position. The control edges close from **SP** to **BR** and open **BR** towards **T**. Thus closes the secondary circuits (braking circuits).

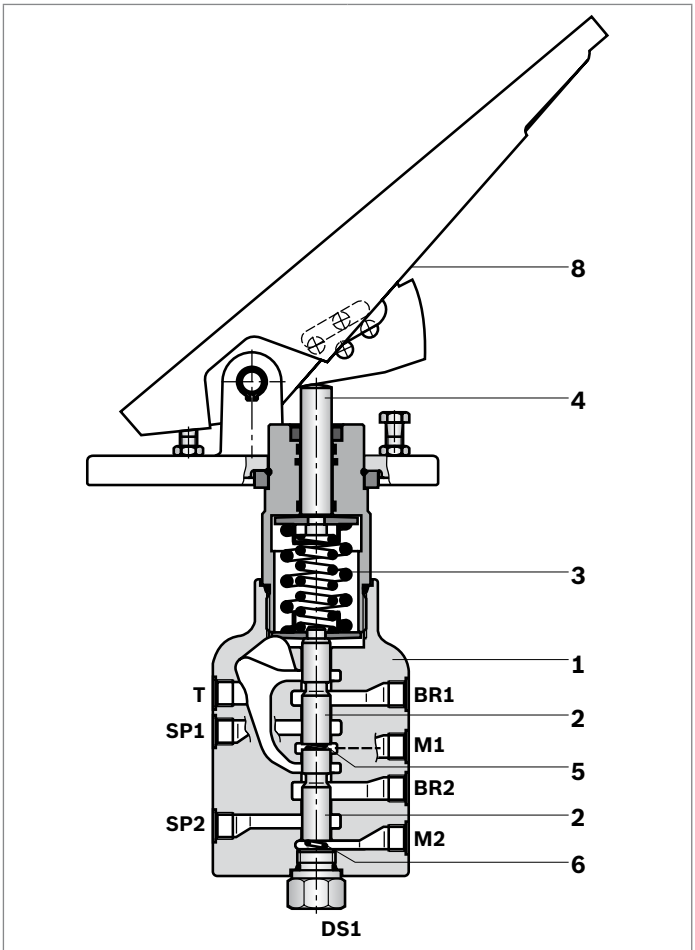
Ports	
SP1	Supply operating brake circuit 1
SP2	Supply operating brake circuit 2
T	Tank
BR1	Operating brake circuit 1
BR2	Operating brake circuit 2
M1	Brake pressure return (Operating brake circuit 1)[1)]
M2	Brake pressure return (Operating brake circuit 2)[1)]
DS1	Pressure switch (brake light)

1) Optionally pressure switch (brake light)

▼ **Symbol LT 07**



▼ **Cross-section LT 07**



1	Housing	**5**	Return spring
2	Control spool	**6**	Return spring
3	Main compression springs	**7**	Brake pressure return
4	Operating element	**8**	Standard brake pedal

Technical data

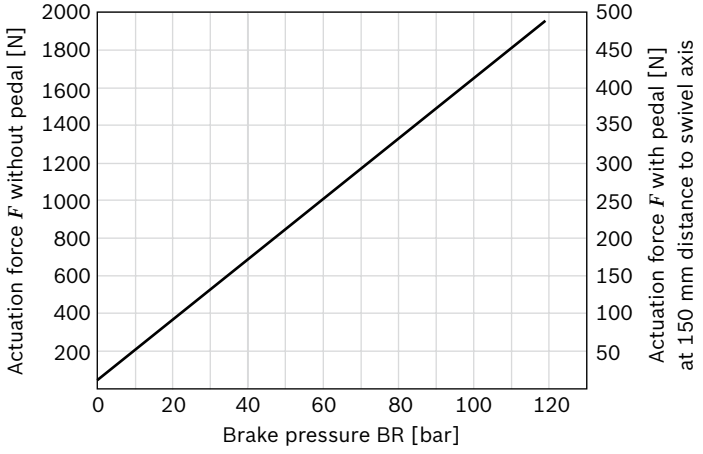
General				
Weight	Without pedal		kg	4.7
	With standard pedal		kg	6.4
Installation position				Upright preferred
Type of connection				Metric threats according to DIN 3852-1
Ambient temperature range		θ	°C	–25 to +80
Priming				Single coat RAL 5010

Hydraulic				
Maximum service brake pressure at port	BR1, BR2	p	bar	120
Maximum inlet pressure at port	SP1, SP2	p	bar	200
Maximum tank pressure at port	T	p	bar	0.5 (Tank pressure must not exceed the pressure being applied by the brake.)
Hydraulic fluid				Mineral oil (HL, HLP) according to DIN 51524, other hydraulic fluids, such as HEES (synthetic esters) according to VDMA 24568 as well as hydraulic fluids as specified in the data sheet 90221, on inquiry.
Hydraulic fluid temperature range θ		θ	°C	–20 to +80
Viscosity range		v	mm²/s	2.8 to 380
Maximum permitted degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)				Class 20/18/15, for this we recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$

Note
For applications outside these parameters, please consult us!

Theoretical characteristic curves

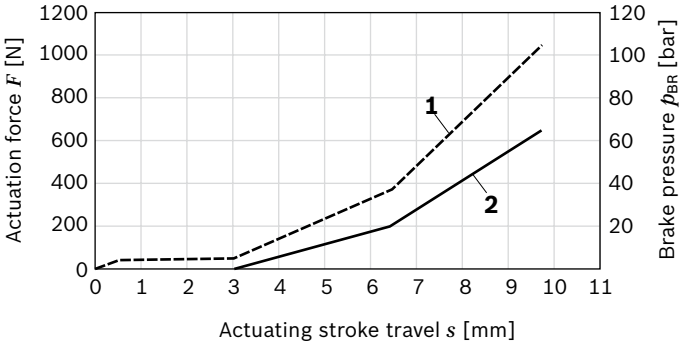
▼ **Actuation force without and with pedal according to braking pressure**

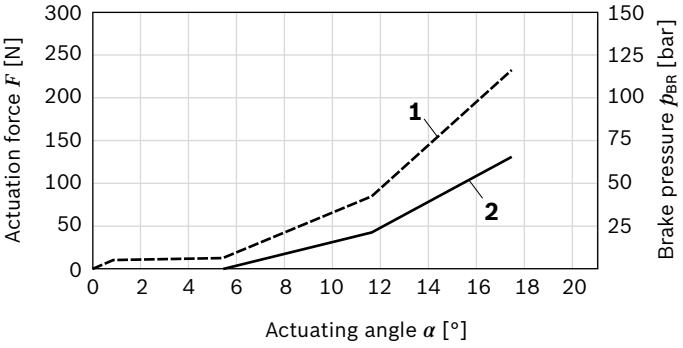


Theoretical characteristic curves (Preferred types)

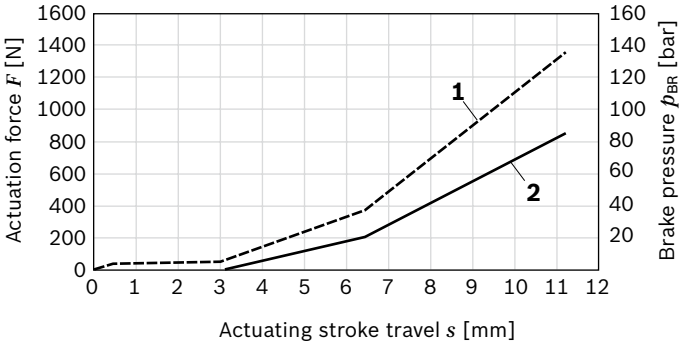
Without pedal | **With pedal**

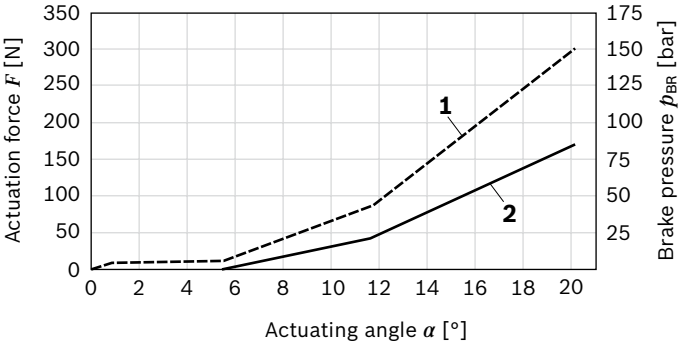
▶ **60 bar**; **1** = Force F, **2** = Brake pressure BR



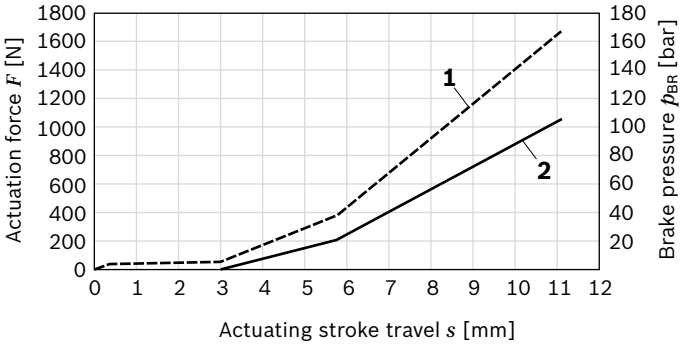


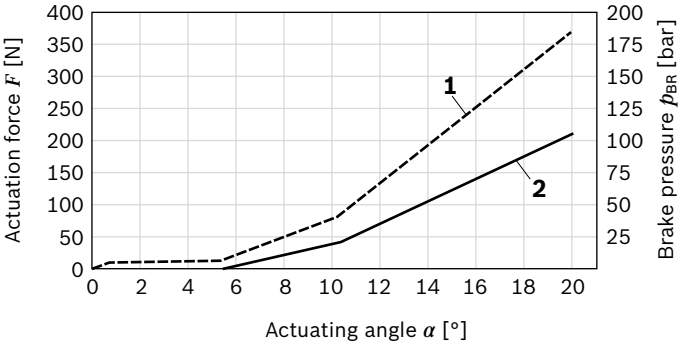
▶ **80 bar**; **1** = Force F, **2** = Brake pressure BR



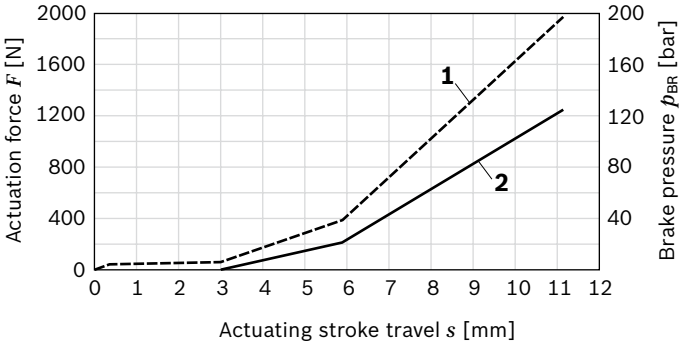


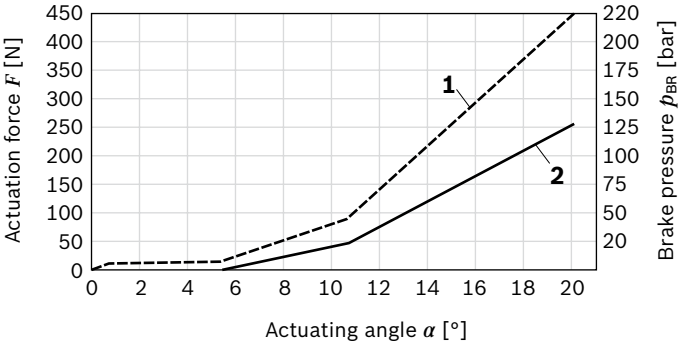
▶ **100 bar**; **1** = Force F, **2** = Brake pressure BR





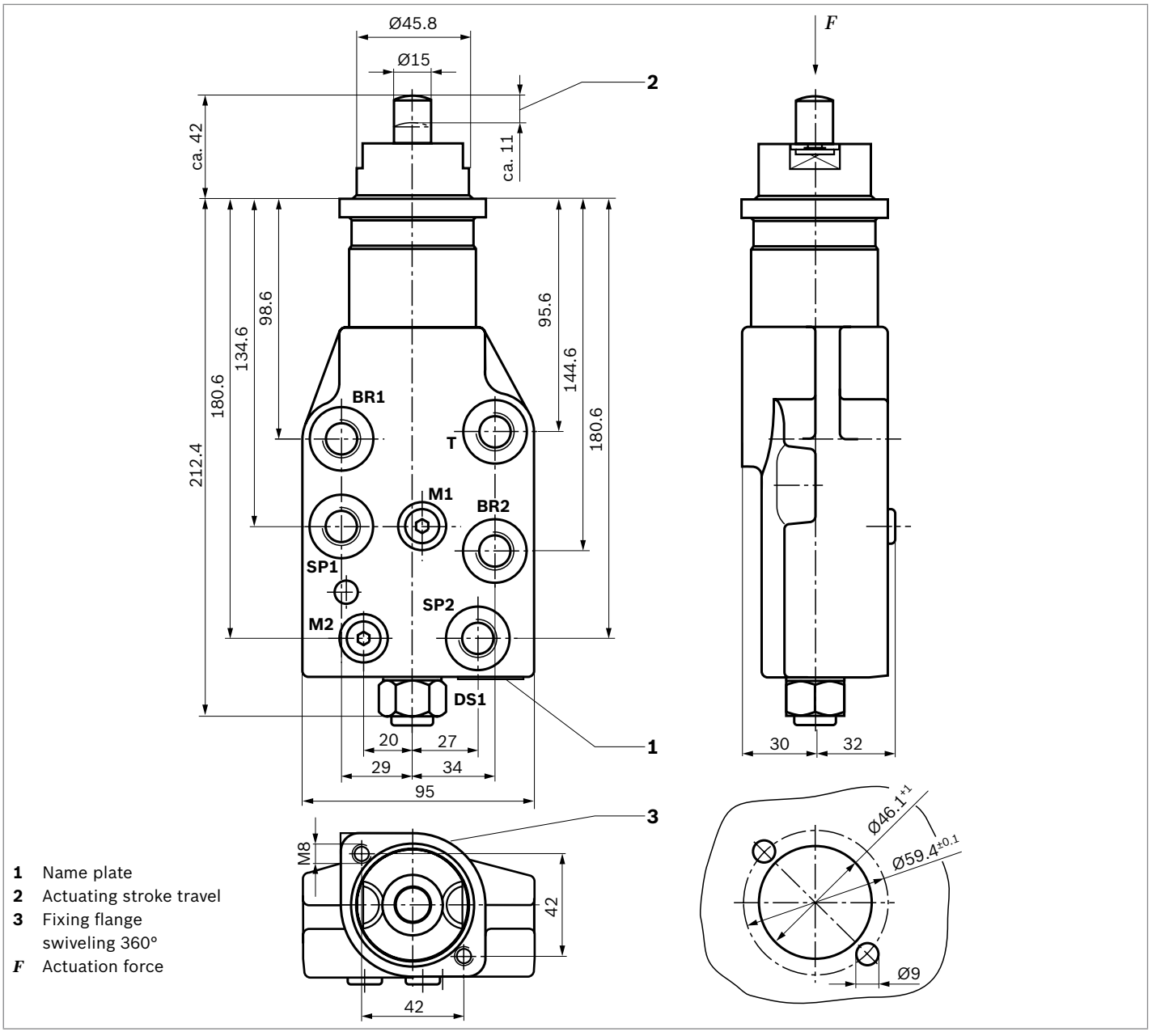
▶ **120 bar**; **1** = Force F, **2** = Brake pressure BR





Dimensions

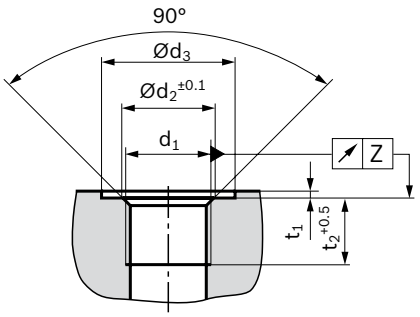
Without pedal



1 Name plate
2 Actuating stroke travel
3 Fixing flange swiveling 360°
F Actuation force

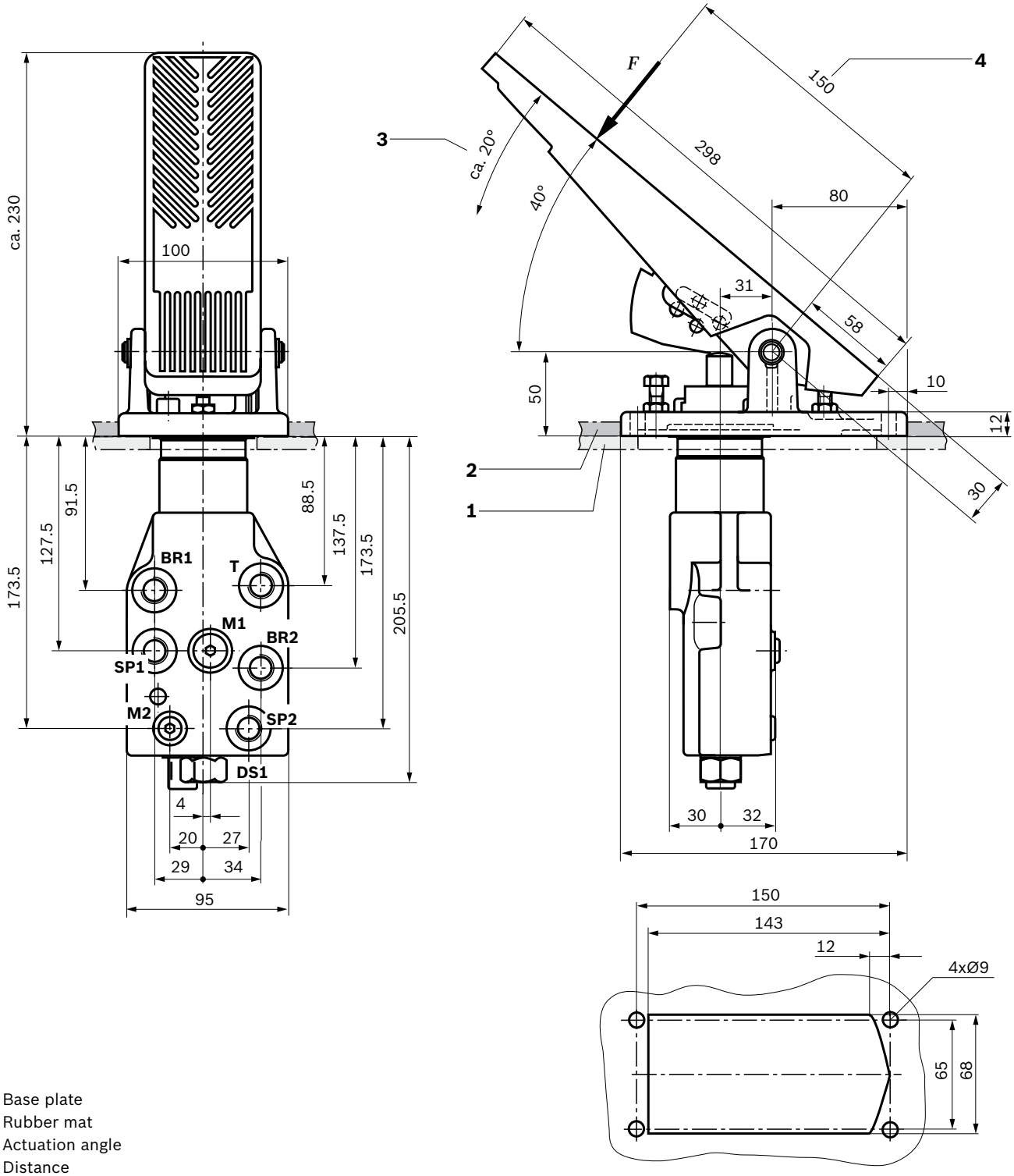
Ports according to DIN 3852-1

Port	d_1	$Ød_2^{\pm 0,1}$	$Ød_3$	t_1	t_2	z
BR1; BR2	M16 x 1.5	16.4	26	1.5	12	0.05
SP1; SP2	M16 x 1.5	16.4	26	1.5	12	0.05
T	M16 x 1.5	16.4	26	1.5	12	0.05
DS1	M12 x 1.5	12.4	20	0.9	11	0.1
M1, M2	M10 x 1	10.4	27	1.5	8	0.05



Ports **DS1**, **M1** and **M2** plugged by default.

With fitted standard pedal LT 19



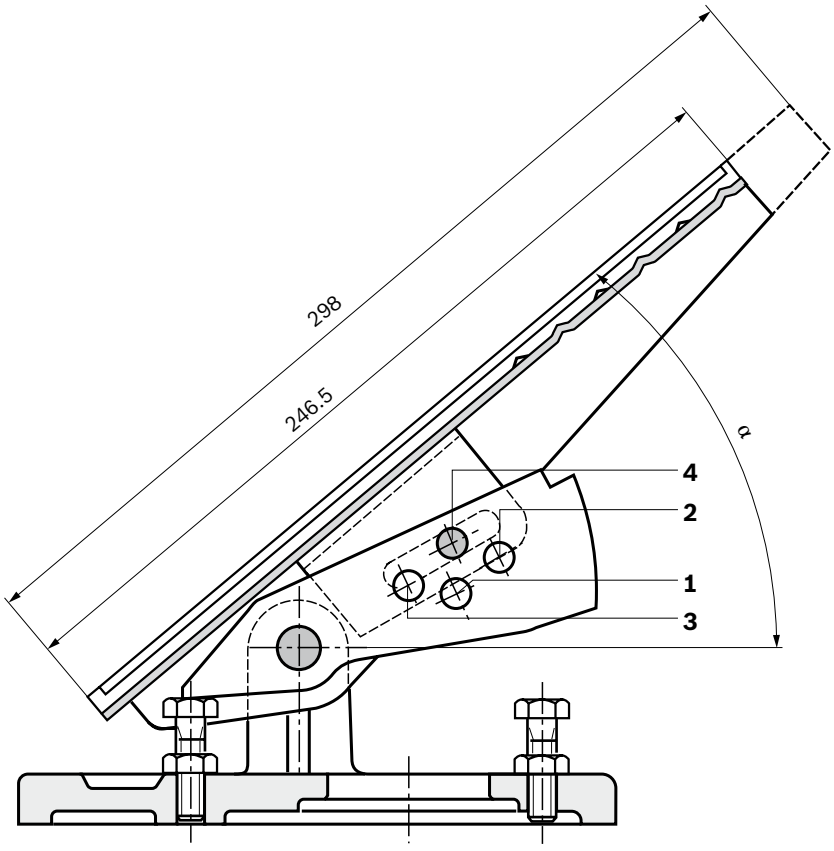
1 Base plate
2 Rubber mat
3 Actuation angle
4 Distance
F Actuation force

Assembly interface in base plate

Brake pedal variations

The brake valve LT 07 is optionally provided with or without pedal. The pedals LT 19 and LT 20 are available (Further variants on request).

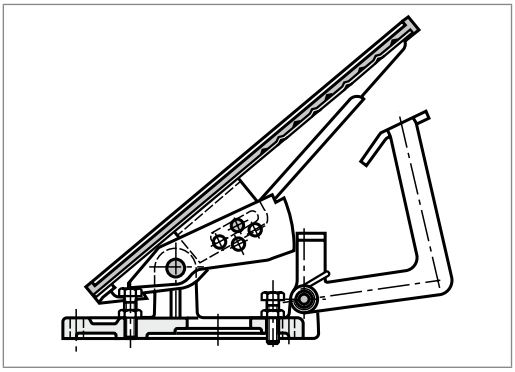
▼ **Standard type LT 19 / Type LT 19 with shortened pedal plate**



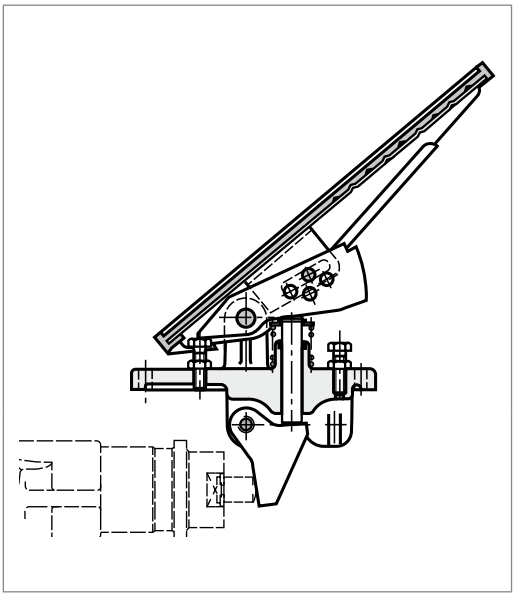
Pedal angle α adjustable in 5° increments:

1 Hole 1 = 25°
2 Hole 2 = 30°
3 Hole 3 = 35°
4 Hole 4 = 40° (Standard)

▼ **Type LT 19 with detent**



▼ **Type LT 20 for horizontal fitted brake valves**



Note
All pedal variations are fitted with a slip resistant, removable rubber plate by default.

General notes

Installation notes

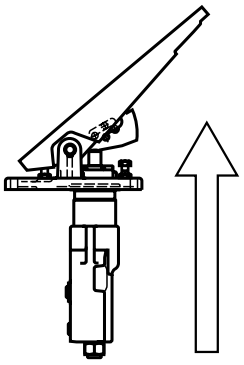
- Rubber parts must not be painted.
- Operating elements must not be directly exposed to high-pressure jet cleaning.
- The cross-sections of hydraulic transmission elements (pipes, hoses) must be selected so that at low operating temperatures the pressure drop between hydraulic accumulator and brake cylinder remains low.
- The tank must be mounted above the brake valve LT 07 to avoid drainage of the brake valve.
- When assembling below the base plate it must be taken care that the movement of the pedal cannot be affected by dirt.

Notes for the repair

- Damaged valves must be repaired, even if their function is not impaired.

Installation position

- Upright preferred.



Intended use

Brake valves LT 07 are hydraulic components and are therefore either covered by the cope of the completely or the partly completed machinery in the sense of the EC machinery directive 2006/42/EC. The component is exclusively intended to be assembled together with other components to form partly completed or complete machinery. The component may only be commissioned if it has been integrated in the machine for which it is designed.

You may use the product as follows:

- The brake valves LT 07 have been developed for the application in mobile working machinery.
- Comply with the technical data.
- The product is only intended for professional use and not for private use.

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Mobile Applications
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