

Specification for the attachment of work equipment to TEREX | Fuchs loading machines

1. Specification for the use of grabs on TEREX | Fuchs loading machines

When using grabs on TEREX | Fuchs loading machines the following specification principles for these machines should be observed.

- 1.1 When selecting the attachment, the operating weight of the loading machine must be taken into account.
- 1.2 When selecting the attachment the loading machine's maximum permitted lifting capacity must be taken into account (see lifting capacity chart).
- 1.3 The grab volume selected must be appropriate to the material density and the machine's lifting capacity chart. The weight of the grab must be taken into account.
- 1.4 In positioning the grab receptacle (suspension mounting) care must be taken to ensure that the lubricated floating bearing is located in the stick centre. When attaching the grab suspension to the stick centre the geometries of the dipper stick of TEREX | Fuchs loading machines must be observed in accordance with the following table:

Machine type	Width of stick centre (mm)	Bolt diameter (mm)
MHL 320	289	70
MHL 331	289	70
MHL 335	289	70
MHL 340	289	70
MHL 350	289	70
MHL 360	289	70
MHL 380	339	80

- 1.5 The following hydraulic connection data should be taken into account in selecting the grab. The work attachment should at a minimum be suitable and authorized for the specifications quoted.

	MHL320	MHL331	MHL335	MHL340	MHL350	MHL360	MHL380	MHL585
Max. oil quantity opening (l/min)	120	160	160	160	200	269	200	200
Max. oil quantity closing (l/min)	160	200	200	240	320	280	250	250
Max. oil quantity slewing (l/min)	22,5	22,5	22,5	22,5	23,0	24,0	24,5	25,0
Max. operating pressure slewing (bar)	150	150	150	150	175	175	175	175
Secondary pressure slewing (bar)	200	200	200	200	200	200	200	200
Max. operating pressure opening (bar)	320 ⁺⁵	320 ⁺⁵	320 ⁺⁵	325	325	320 ^{±5}	230/280	230/280
Secondary pressure opening (bar)	350 ⁺¹⁰	350 ⁺⁵	350 ⁺⁵	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰
Max. operating pressure closing (bar)	320 ⁺⁵	320 ⁺⁵	320 ⁺⁵	325	325	320 ^{±5}	230/280	230/280
Secondary pressure closing (bar)	350 ⁺¹⁰	320 ⁺⁵	320 ⁺⁵	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰

- 1.6 TEREX | Fuchs cactus grabs are precisely adapted and specified for use with TEREX | Fuchs loading machines. TEREX | Fuchs grabs must always be used on TEREX | Fuchs loading machines only with the original connecting part (suspension).

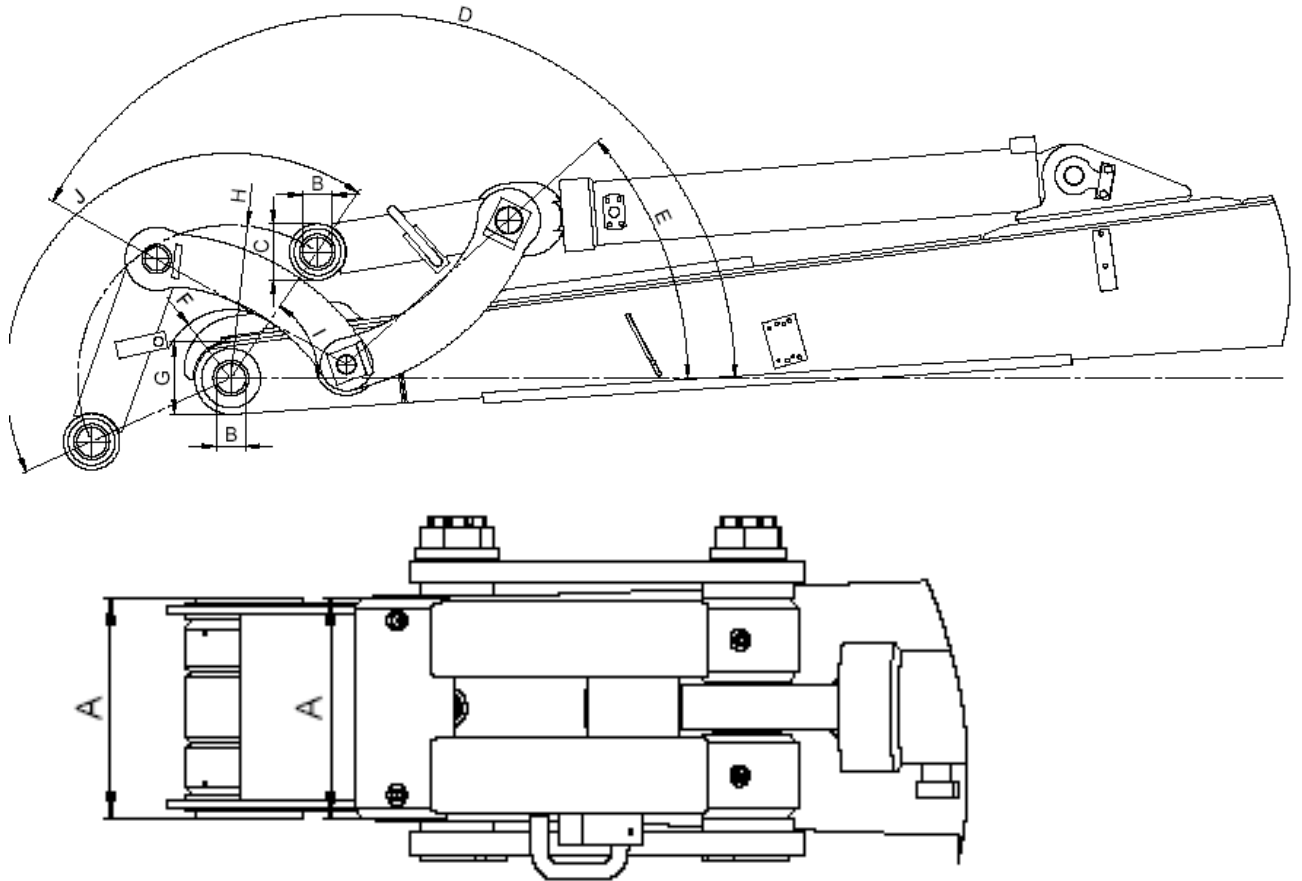
2. Specification for the use of sorting grabs on TEREX | Fuchs loading machines

When using sorting grabs on TEREX | Fuchs loading machines with a multi-purpose stick the following specification principles for these machines should be observed.

- 2.1 When selecting the attachment, the operating weight of the loading machine must be taken into account.
- 2.2 When selecting the attachment the loading machine's maximum permitted lifting capacity must be taken into account (see lifting capacity chart).
- 2.3 The grab volume selected must be appropriate to the material density and the machine's lifting capacity chart. The weight of the grab and the tool kinematics including tilting cylinder must be taken into account. It should be taken into account that the centre of gravity of the sorting grab may lie in front of the vertical work line of the stick centre.
- 2.4 In positioning the grab receptacle (suspension mounting) care must be taken to ensure that the lubricated floating bearing is located in the stick centre. When attaching the sorting grab and considering the design of the reception adapter the geometries of the multi-purpose stick of the TEREX | Fuchs loading machines must be observed in accordance with the following table:

Sorting stick kinematics

Machine type	Stick length (m)	A (mm)	B (mm)	C (mm)	D	E	F (mm)	G (mm)	H (mm)	I	J
MHL320 from mach.-no. 0421	3,7	289	70 ^{+0,22} _{+0,1}	133	163°	49°	125	170	363	62°	167°
MHL331 from mach.-no. 1130	4,0	289	70 ^{+0,22} _{+0,1}	133	154°	45°	150	171	363	59°	152°
MHL335 from mach.-no. 0011	4,0	289	70 ^{+0,22} _{+0,1}	133	154°	45°	150	171	363	59°	152°
MHL340 from mach.-no.1350	4,5	289	70 ^{+0,22} _{+0,1}	133	155°	46°	150	171	363	60°	152°
MHL350 from mach.-no. 1130	5,6	289	70 ^{+0,22} _{+0,1}	133	151°	42°	163	171	363	56°	149°



- 2.5 The adjustable one-way restrictor valves of the tilting cylinder should if necessary be optimized for the grab weight, material density and operating conditions by opening and closing.
- 2.6 The following hydraulic connection data should be taken into account in selecting the grab. The work attachment should at a minimum be suitable and authorized for the specifications quoted.

	MHL320	MHL331	MHL335	MHL340	MHL350	MHL360	MHL380	MHL585
Max. oil quantity opening (l/min)	120	160	160	160	200	269	200	200
Max. oil quantity closing (l/min)	160	200	200	240	320	280	250	250
Max. oil quantity slewing (l/min)	22,5	22,5	22,5	22,5	23,0	24,0	24,5	25,0
Max. operating pressure slewing (bar)	150	150	150	150	175	175	175	175
Secondary pressure (bar)	200	200	200	200	200	200	200	200
Max. operating pressure opening (bar)	320 ⁺⁵	320 ⁺⁵	320 ⁺⁵	325	325	320 ^{±5}	230/280	230/280
Secondary pressure opening (bar)	350 ⁺¹⁰	350 ⁺⁵	350 ⁺⁵	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰
Max. operating pressure closing (bar)	320 ⁺⁵	320 ⁺⁵	320 ⁺⁵	325	325	320 ^{±5}	230/280	230/280
Secondary pressure closing (bar)	350 ⁺¹⁰	320 ⁺⁵	320 ⁺⁵	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰

3. Specification for the use of load-lifting magnets on TEREX | Fuchs loading machines

When using load-lifting magnets on TEREX | Fuchs loading machines the following specification principles for these machines should be observed.

- 3.1. When selecting the work attachment, the operating weight of the loading machine must be taken into account.
- 3.2. When selecting the attachment the loading machine's maximum permitted lifting capacity must be taken into account (see lifting capacity chart).
- 3.3. The plate size of the load-lifting magnet selected must be appropriate to the material density and the machine's lifting capacity chart. The weight of the load-lifting magnet must be taken into account.
- 3.4. In positioning the magnet receptacle (suspension mounting) care must be taken to ensure that the lubricated floating bearing is located in the stick centre. In the case of magnets with chain suspension the suspension mounting must be suitable for the secure attachment of the chain link.
- 3.5. The following hydraulic connection data should be taken into account in hydraulically slewable load-lifting magnets. The work attachment should at a minimum be suitable and authorized for the specifications quoted.

	MHL320	MHL331	MHL335	MHL340	MHL350	MHL360	MHL380	MHL585
Max. oil quantity slewing (l/min)	22,5	22,5	22,5	22,5	23,0	24,0	24,5	25,0
Max. operating pressure slewing (bar)	150	150	150	150	175	175	175	175
Secondary pressure slewing (bar)	200	200	200	200	200	200	200	200

- 3.6. Depending on the TEREX | Fuchs d.c. generator system (EME) that is selected and installed, the minimum values in the following table should be observed.

Generator system (type/output)	9 kW	11 kW	13 kW	17 kW	20 kW	30 kW
Min. internal resistance at 20 °C $R_{i20} (\Omega)$	10.0	8.2	6.9	5.3	4.5	3.0
Max. current strength I_{20max} at 20 °C (A)	22	26.8	31.9	41.5	48.9	73.3
Max. power consumption during shock excitation	9.0	11.0	13.0	17.0	20.0	30.0
Max. power consumption during holding operation (kW)	4.8	5.9	7.0	9.1	10.8	16.1

In selecting the specification of a new magnet we recommend that the magnet should have an internal resistance of at least 125% of the R_{i20} min. Given the wear that is to be expected this helps to maintain trouble-free operation even in fluctuating temperatures.

3.7 Depending on the TEREX | Fuchs GTS d.c. generator system, the minimum values in the following table should be observed.

Generator system (type/output)	9 kW	11 kW	13 kW	17 kW	20 kW	30 kW
Voltage	230	230	230	230	230	230
Min. internal resistance at 20 °C R_{i20} (Ω)	6.8	5.5	4.7	3.6	3.0	2.0
Max. current strength I_{20max} at 20 °C (A)	39.0	47.8	56.5	73.9	87.0	130.0
Max. current consumption (kW)	9.0	11.0	13.0	17.0	20.0	30.0

In selecting the specification of a new magnet we recommend that the magnet should have an internal resistance of at least 125% of the R_{i20} min. Given the deterioration that is to be expected this helps to maintain trouble-free operation even in fluctuating temperatures.

125 % R_{i20} (Ω)	8,50	6,87	5,87	4,50	3,75	2,5
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3.8 TEREX | Fuchs load-lifting magnets are precisely adapted and specified for use with TEREX | Fuchs loading machines. TEREX | Fuchs load-lifting magnets must always be used on TEREX | Fuchs loading machines only with the original connecting part (suspension).

3.9 Load-lifting magnets are subject to “natural” deterioration. In the course of the magnet’s service life its internal resistance will be slowly but continuously reduced by partial shorts in the coils. We therefore recommend checking the internal resistance regularly and having serious reductions in internal resistance repaired.

- a. The magnet’s internal resistance can be measured with a standard multimeter. Before measuring the internal resistance the magnetic plate should first be removed from the MAPLA system.
- b. For safety reasons the insulating resistance of the magnetic plate should also be checked at regular intervals using a high-voltage testing device (insulation measuring device with a voltage of 250V). Here, too, care should be taken to ensure that the plate is removed from the machine before testing. If the insulating resistance is less than 25 kΩ, a critical threshold value has been reached and the plate must no longer be used. To use it would pose a risk of electrical earth faults.

4. Specification for the use of log grabs on TEREX | Fuchs loading machines

When using log grabs on TEREX | Fuchs loading machines the following specification principles for these machines should be observed.

- 4.1 When selecting the work attachment, the operating weight of the loading machine must be taken into account.
- 4.2 When selecting the attachment the loading machine's maximum permitted lifting capacity must be taken into account (see lifting capacity chart).
- 4.3 The grab size selected must be appropriate to the log length, the specific weight of the wood (wood type and moisture content) and the machine's lifting capacity chart. The weight of the log grab must be taken into account. It is recommended that in P+C operation (MHL 434, 454, 464) in transport mode (travelling mode) usage is based on only 66% of permissible lifting capacity in accordance with the accompanying lifting capacity chart.
- 4.4 In positioning the grab receptacle (suspension mounting) care must be taken to ensure that the lubricated floating bearing is located in the stick centre. When attaching the grab suspension to the stick centre the geometries of the dipper stick of the TEREX | Fuchs loading machines must be observed in accordance with the following table:

Machine type	Width of stick centre (mm)	Bolt diameter (mm)
MHL 434	289	70
MHL 454	339	80
MHL 460	289	70
MHL 464	339	80

- 4.5 The following hydraulic connection data should be taken into account in selecting the grab. The work attachment should at a minimum be suitable and authorized for the specifications quoted.

Machine type	Grab closing / opening			Grab slewing		
	Oil quantity l/min	Primary pressure bar	Secondary pressure bar	Oil quantity l/min	Primary pressure bar	Secondary pressure bar
MHL 434 up to no.	120	320 ⁺¹⁰	350 ⁺²⁰	22	220 ⁻⁵	---
MHL 454 from no. 011	150 ^{±5} *	300 ⁺²⁰ *	350 ⁺²⁰	25 ^{±1} *	225 ^{±5} *	---
MHL 464 up to no. 073	180/120	320 ⁺¹⁰	350 ⁺²⁰	16/25	220 ⁻⁵	---
MHL 464 from no. 074	150 ^{±5} *	300 ⁺²⁰ *	350 ⁺²⁰	25 ^{±1} *	225 ^{±5} *	---
MHL 460 up to 079	180/120	320 ⁺¹⁰	350 ⁺²⁰	38	210	---
MHL 460 from no. 080	150 ^{±5} *	300 ⁺²⁰ *	350 ⁺²⁰	25	150	200

* = Oil quantities and pressures marked with * can be adapted to the different grab independently of the rest of the hydraulic system.

Values not so marked can be adapted to the different grab only under some conditions.

5. Specification for the use of shears on TEREX | Fuchs Quick-Connect machines

When using scrap shears the following specification principles for TEREX | Fuchs Quick-Connect loading machines should be observed.

- 5.1 When selecting the work attachment, the operating weight of the loading machine must be taken into account.
- 5.2 It is recommended that the size and weight of the shears is selected in accordance with the following table:

Boom length	4.8m	5.2m	5.9m	6.4m	8.9m
MHL340 from #0619	3700 kg				
MHL340 from #1350		3700 kg			
MHL350 from #0585			4900 kg		
MHL350 from #1130				4900 kg	
MHL360 from #0284					4900 kg

- 5.3 When assembling the shears reception bearing only an original TEREX | Fuchs Quick-Connect frame should be used. Only an original frame can ensure a secure and strong connection.
- 5.4 The following hydraulic connection data should be taken into account in selecting scrap shears. The shears should at a minimum be suitable and authorized for the specifications quoted.

	MHL 340 from machine #0619	MHL 340 from machine #1350	MHL 350 from machine #0585	MHL 350 from machine #1130	MHL 360 from machine #0284	MHL 360 from machine #0560
Max. oil quantity opening (l/min)	160	155	200	200	269	269
Max. oil quantity closing (l/min)	240	255	320	320	280	280
Max. oil quantity slewing (l/min)	22,5	22,5	23,0	23,0	24,0	24,6
Max. operating pressure slewing (bar)	150	150	150	150 ⁺⁵	175	200
Secondary pressure slewing (bar)	200	200	200	200	200	200
Max. operating pressure opening (bar)	325	325	325	325 ^{±5}	320 ^{±5}	320 ^{±5}
Secondary pressure opening (bar)	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰
Max. operating pressure closing (bar)	325	325	325	325 ⁺⁵	320 ^{±5}	320 ^{±5}
Secondary pressure closing (bar)	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰	350 ⁺²⁰

- 5.5 Genesis scrap shears are precisely adapted and specified for use with TEREX | Fuchs Quick-Connect loading machines. Genesis shears must always be used on TEREX | Fuchs Quick-Connect loading machines only with the original connecting part (interchangeable frame).