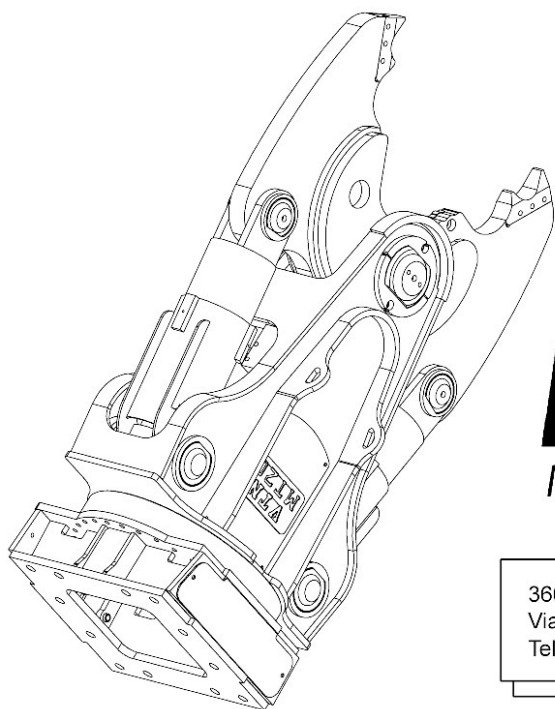
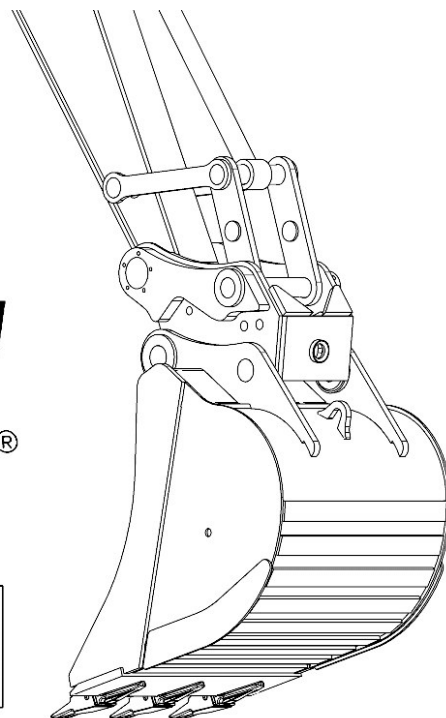




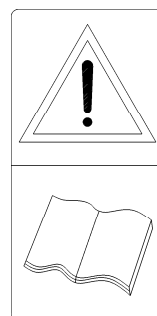
36026 Cagnano di Pojana Maggiore (VI)
Via dell'Artigianato, 41 / 43 - Italy
Tel. 0444 / 864211 - Fax 0444 / 764418



HANDLING GRAPPLE FOR VARIOUS MATERIALS

MD SERIES

HANDBOOK



WARNING: Before carrying out any operations on the above product, read this instruction manual carefully.

TERMS USED:

Attachment: VTN attachment to which this manual refers.

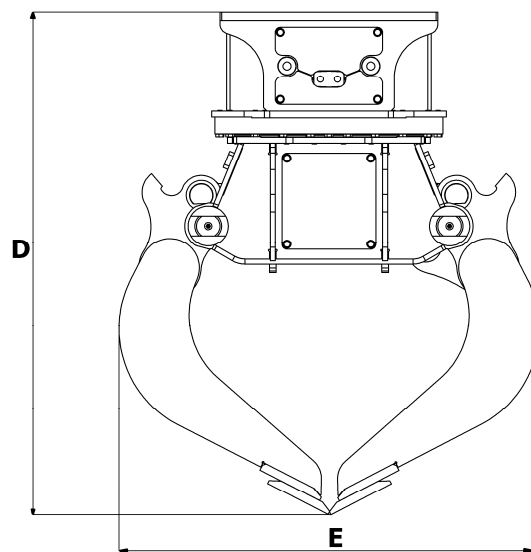
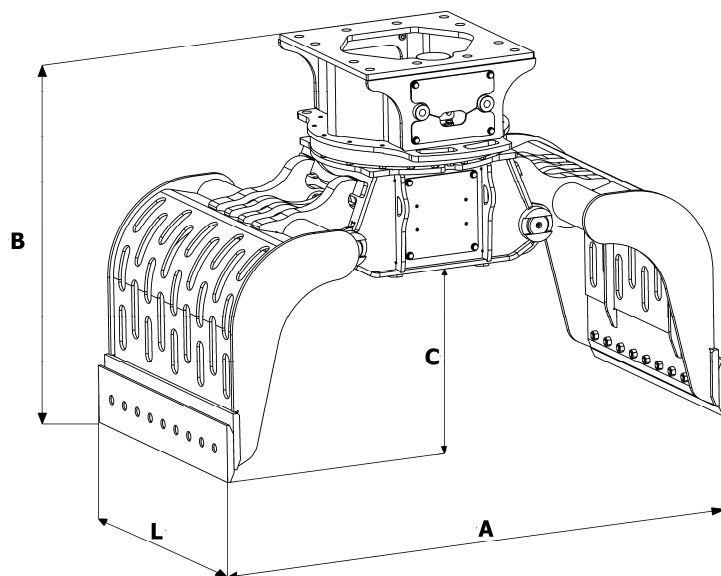
Excavator: excavator on which the attachment is mounted

DESCRIPTION OF THE ATTACHMENT

It is a handling grapple able to perform the recycling work.

This attachment should be used as interchangeable equipment for earth moving machines.

See below the machinery dimensions and general layout:

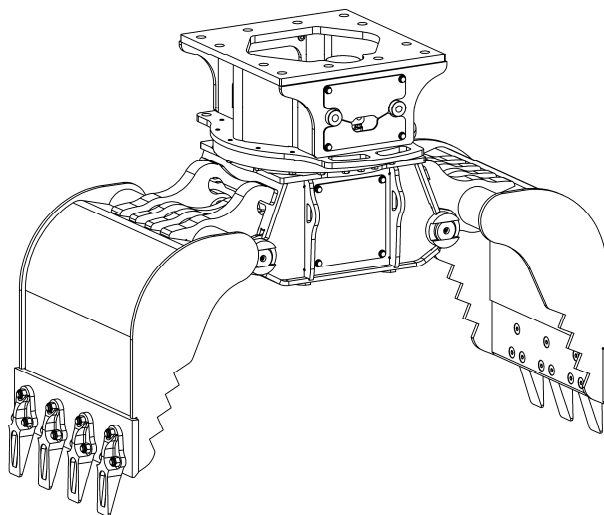


TECHNICAL SPECIFICATIONS

This product is manufactured in different versions suitable the following classes of excavators:

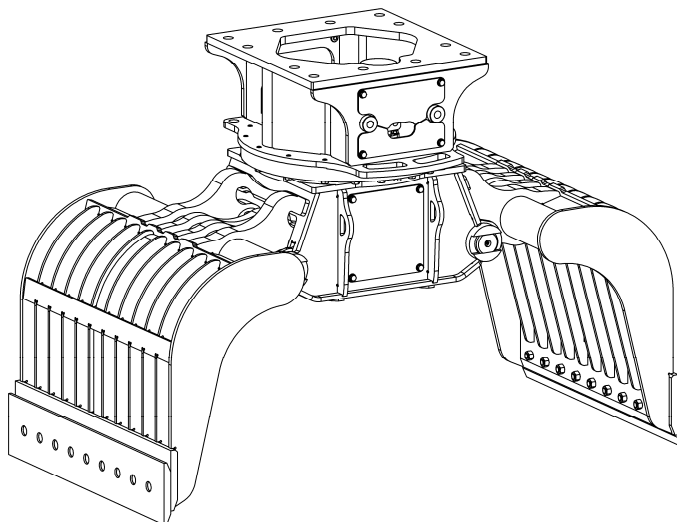
MODEL		MD45	MD65		MD100		MD140		MD210			MD290			MD3140	MD4150
A	mm	955	1185		1560		1810		1930			2560			2200	2500
B	mm	670	820		980		1200		1350			1505			1650	1850
C	mm	300	370		480		555		600			690			726	800
D	mm	730	910		1095		1350		1500			1700			1870	2085
E	mm	630	770		995		1170		1255			1480			1500	1750
L	mm	400	400	500	600	700	800	1000	800	1000	1200	1000	1200	1400	1400	1500
CAPACITA' CAPACITY	m³	0,06	0,09	0,1	0,2	0,3	0,4	0,5	0,5	0,6	0,7	0,8	1	1,2	1,2	1,6
PESO/WEIGHT (TOTAL)	kg	130	245	255	430	455	815	870	1160	1230	1300	1710	1800	1890	2456	3640
PESO ESCAV. EXCAV. WEIGHT	ton	1.5/4	3/6		5/10		9/14		15/21			20/29			28/40	37/60

• **JAWS "CH"**



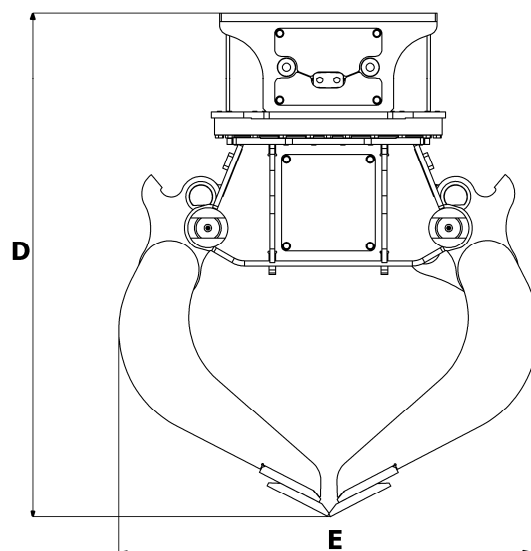
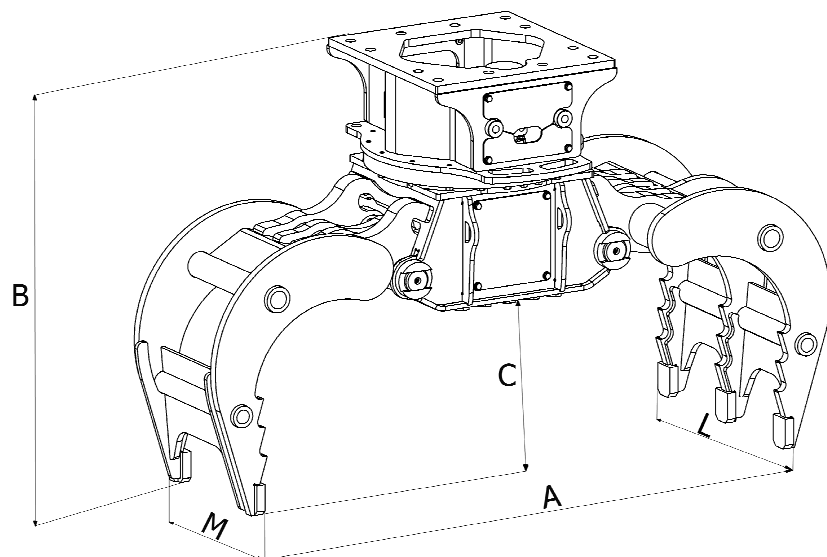
MODEL		MD45	MD65		MD100		MD140		MD210			MD290			MD3140	MD4150
JAWS TYPE		CH	CH		CH		CH		CH			CH			N.A.	N.A.
L	mm	400	400	500	600	700	800	1000	800	1000	1200	1000	1200	1400	\	\
TEETH	n°	2+1	2+1	2+1	3+2	3+2	4+3	5+4	4+3	5+4	5+4	5+4	5+4	6+5	\	\
WEIGHT (TOTAL)	kg	130	250	260	455	475	845	920	1160	1230	1300	1770	1820	1890	\	\

• **JAWS "D"**



MODEL		MD45	MD65		MD100		MD140		MD210			MD290			MD3140	MD4150
JAWS TYPE		D	D		D		D		D			D			N.A.	N.A.
L	mm	\	400	500	600	700	800	1000	800	1000	1200	1000	1200	1400	\	\
WEIGHT (TOTAL)	kg	\	255	270	455	480	855	925	1220	1310	1400	1950	2100	2250	\	\

• **JAWS "MP"**



MODEL		MP 140	MP 210	MP 290
JAWS TYPE		MP	MP	MP
A	mm	1705	1810	2110
B	mm	1170	1335	1510
C	mm	500	555	635
D	mm	1310	1470	1680
E	mm	1295	1365	1525
L	mm	650	800	950
M	mm	450	540	650
WEIGHT (TOTAL)	kg	820	1215	1830

PURPOSE OF THE MACHINE

The machine is designed for HANDLING AND SORTING various material.
The equipment can rotate to achieve the correct orientation.

UNAUTHORIZED USES:

DO NOT USE ROTATION during the movement of the material.

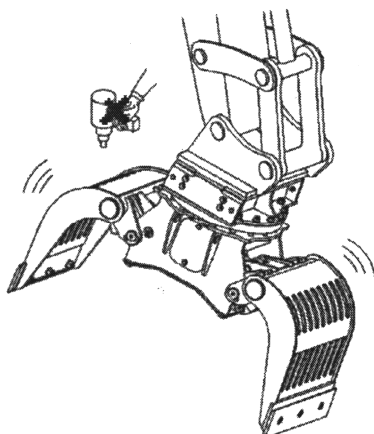
DO NOT CAUSE OSCILLATION during the movement of material.

DO NOT USE THE EQUIPMENT IN UPRIGHT POSITION.

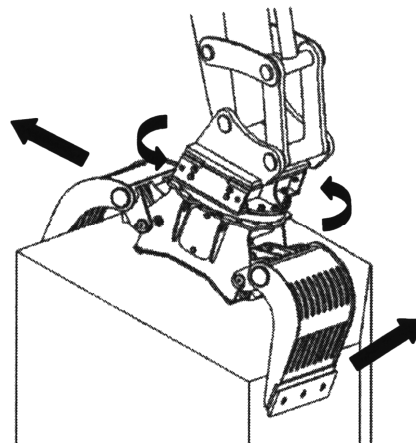
DO NOT HIT OR PUSH the material with the equipment during the work.

DO NOT REPAIR OR MAINTENANCE WHILE THE EQUIPMENT IS FUNCTIONING

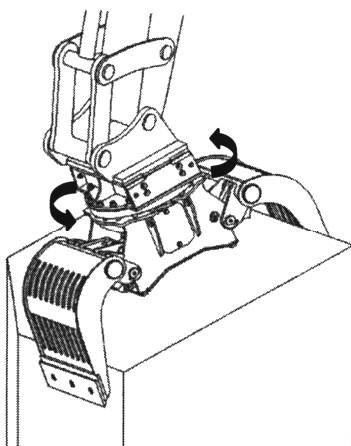
DO NOT SWING WHILE HOLDING STATIONARY MATERIAL



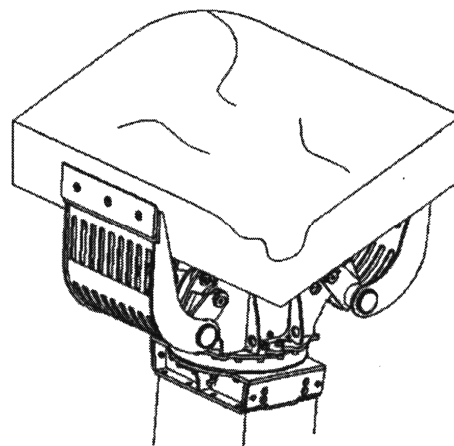
DO NOT ROTATE THE EQUIPMENT WHILE HOLDING STATIONARY MATERIAL



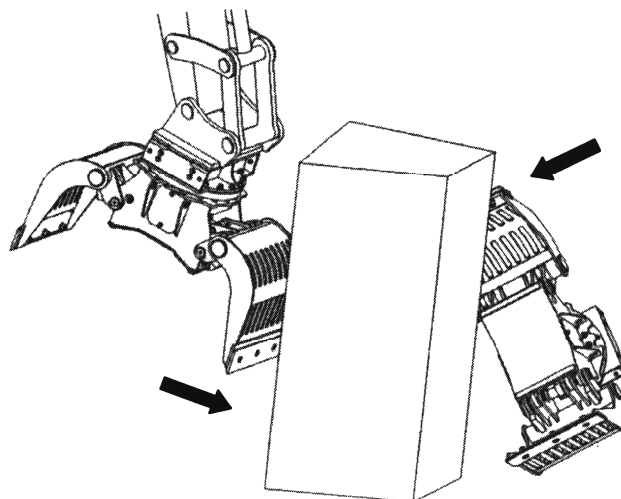
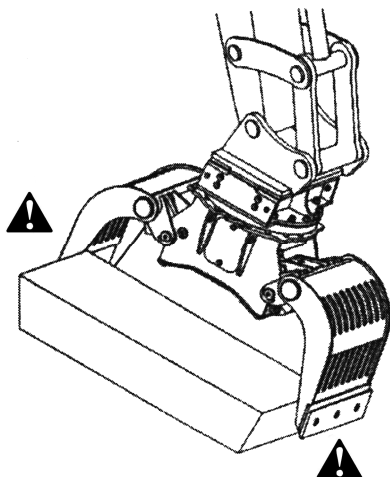
DO NOT USE VERTICALLY UP-SIDE-DOWN, DANGER CUT PIECES MAY FALL DOWN DRIVER'S PROTECTION CAB NECESSARY



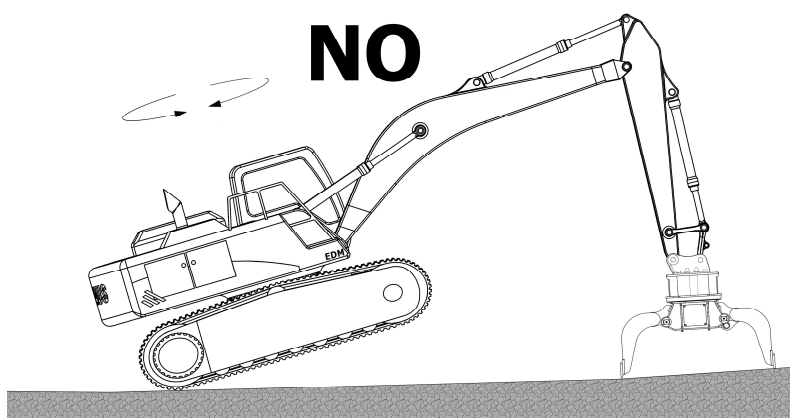
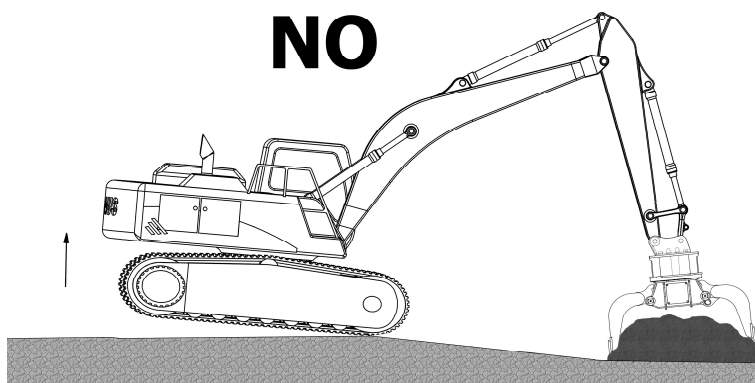
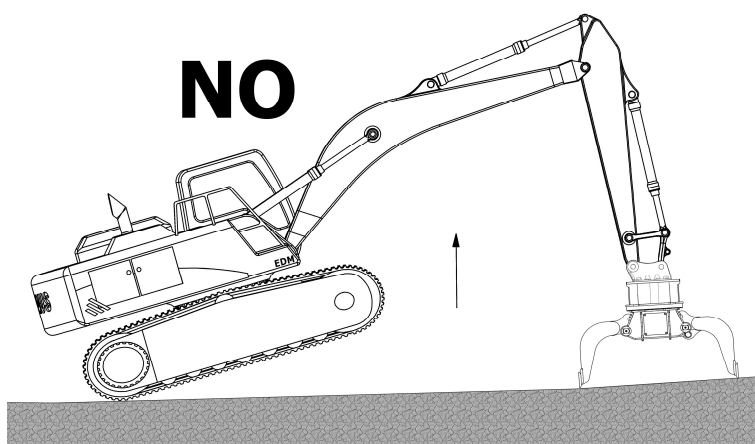
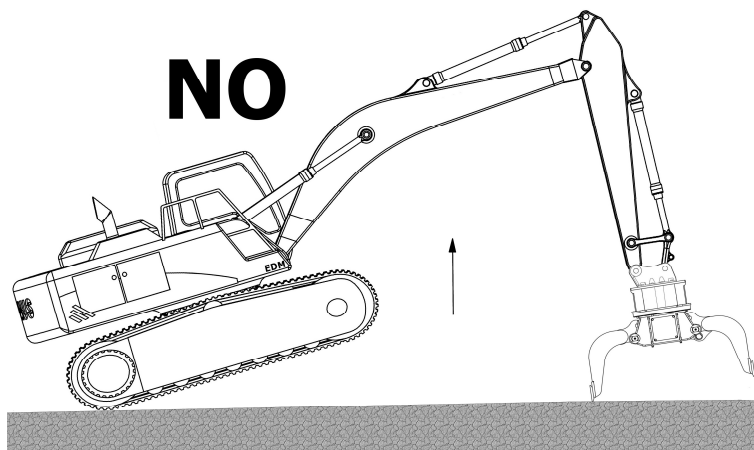
DO NOT EFFECT A PARTIAL GRASP



DO NOT PUSH OR HIT THE MATERIAL WHILE WORKING



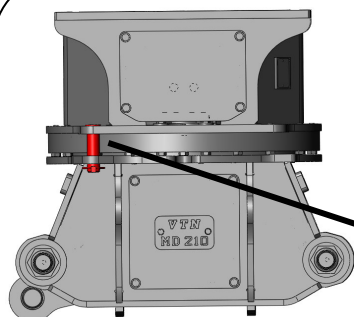
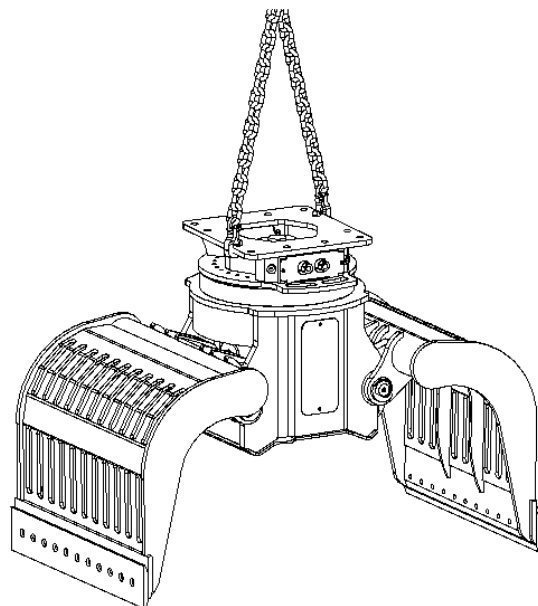
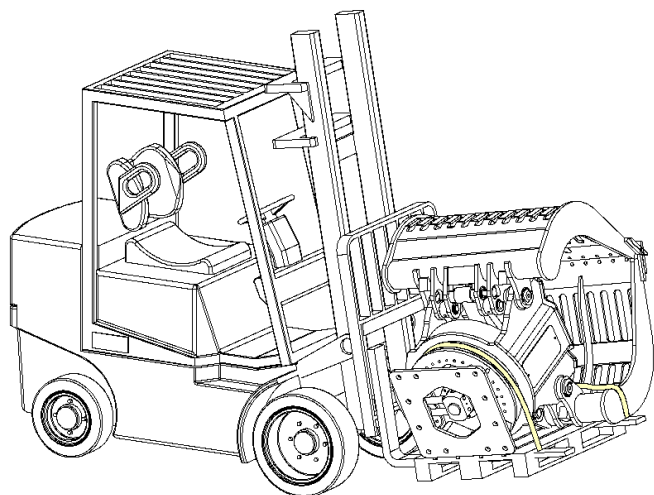
UNAUTHORIZED USES:



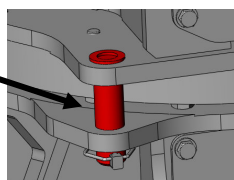
MACHINE HANDLING AND TRANSPORT :

Please see the above description of the attachment in this manual for an indication of weights and sizes.
Given the attachment's weight and size, it must be handled and transported only by specifically skilled personnel.
If the operator employed to handle the attachment does not have a complete view of the attachment to be moved, the assistance of a second operator is needed on the ground but out of the earth-moving vehicle's range of action.
In the attachment there are holes for the insertion of liftings hooks. Make sure that these hooks are secured firmly to allow you to proceed to move the attachment.

THE HOOKS AND THE CABLES USED FOR HANDLING MUST BE SUITABLY RATED FOR THE WEIGHT OF THE EQUIPMENT.



WARNING: to perform all the operations of transport and maintenance of the equipment insert the safety pin as shown in Figure



ATTACHMENT INSTALLATION

CAUTION: Before proceeding to install the attachment you need to be sure that the attachment is intact as it might have been damaged during transportation.

It is especially important to check that the pipes are intact and the hydraulic connections are firmly attached.

IMPORTANT: THE HYDRAULIC SYSTEM OF THE EXCAVATOR MUST BE CLOSED WHEN THE SOLENOID VALVE IS NOT EXCITED.

The attachment must be installed in a space large enough to allow the necessary operations to be carried out in complete safety.

CAUTION: The attachment is not allowed to be used at temperatures below -16 °C or above 45 °C.

ASSEMBLY AND DISASSEMBLY OF THE ATTACHMENT

CAUTION: While being assembled, the attachment should be laid firmly on the ground with the excavator's engine at a standstill and parking brakes pulled on.

If our attachment is supplied without fittings couplings, it is up to the client to fit it with suitable couplings according to current safety standards.

THE INSTALLER, OPERATOR AND MAINTENANCE PERSONNEL MUST WEAR THE SUITABLE PROTECTION DEVICES SPECIFIED BY THE RELEVANT SAFETY LEGISLATION IN FORCE IN THE COUNTRY WHERE THE EQUIPMENT IS USED.



VTN EUROPE DECLINES ALL LIABILITY IN THE EVENT OF ACCIDENTS IF THE INSTALLER, OPERATOR OR MAINTENANCE PERSONNEL FAIL TO USE THE SUITABLE SAFETY DEVICES.

Assembly:

The couplings provided in our attachment are equivalent to those supplied for the standard buckets of the vehicle on which this attachment is mounted. For a detailed explanation on mechanical connection please refer to the instruction handbook of the vehicle in question.

The hydraulic system shall be connected by linking the two hydraulic fittings on the equipment to the corresponding fittings on the machine.

This operation shall be carried out for the fittings of the equipment rotating system as well as for these of the opening and closing system.

ATTENTION:

THE ROTATION SYSTEM must be connected to ONE INLET LINE AND TO ITS RESPECTIVE RETURN LINE.

THE OPENING/CLOSING SYSTEM must be connected to ONE DELIVERY AND TO ITS RESPECTIVE RETURN.

KEEP THE TWO SYSTEMS APART.

CAUTION: THE OUTLET PRESSURE AND FLOW OF THE EXCAVATOR MUST ALWAYS BE AS REQUIRED FOR THE ATTACHMENT IN USE.

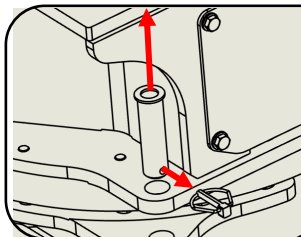
DO NOT USE THE ATTACHMENT WITHOUT FIRST CHECKING THAT THE DELIVERY PRESSURE AND FLOW OF THE ATTACHMENT IS AS REQUIRED.

Disassembly:

When disassembling, the attachment must be laid firmly on the ground.

- Turn off the excavator engine and pull the parking brakes
- Make sure that the hydraulic system connected to the handling grapple is no longer under pressure**
- Remove hydraulic connections between the excavator and attachment
- Uncouple the coupling pins of the fitting as described in the excavator instruction handbook.

START-UP AND USE OF THE ATTACHMENT



CAUTION: Before starting up the equipment to remove the safety pin as shown in the figure.

During operation the operator must stay on board the excavator, in the position recommended by the manufacturer.

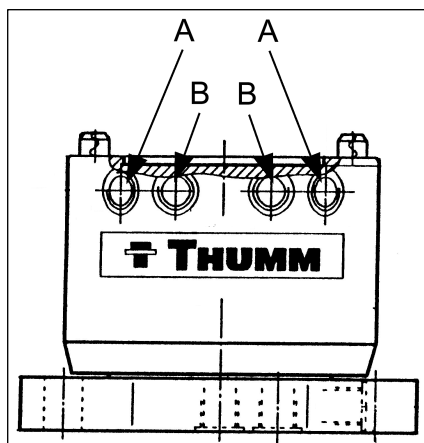
No-one must stand within a 30 metre range of the excavator when it is working.

The various fittings are coupled with the operator in his working position on board the excavator and No-one must stand within a 30 metre range of the fitting coupling position.

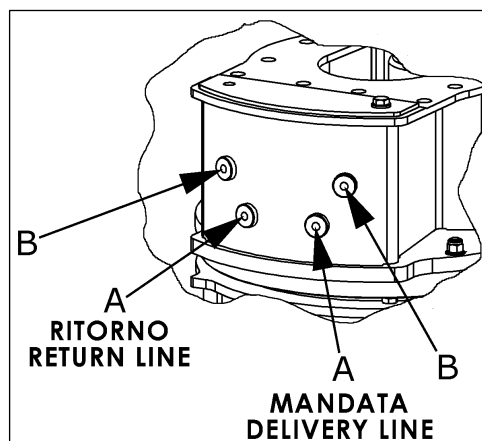
CONNECTIONS SPECIFICATIONS:

With reference to the following diagram:

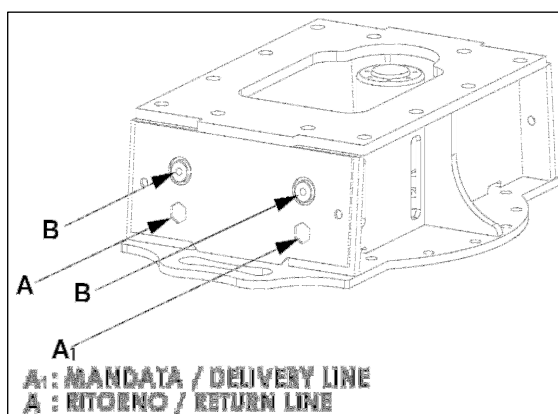
MD45



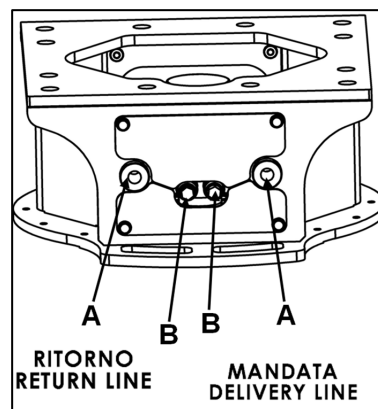
MD65 – MD100



MD140



MD 210 – MD290



MODELLO MODEL		MD45	MD65	MD100	MD140	MD210	MD290	MD3140	MD4150
Dimensione A		3/8"	3/8"	3/8"	1/2"	3/4"	3/4"	3/4"	1"1/4
Dimensione B		3/8"	1/4"	1/4"	1/4"	3/8"	3/8"	3/8"	3/8"
PORTATA ROTAZ. ROTATION FLOW	l/min	5	5/8	5/8	5/8	20/30	20/30	40/50	40/50
PRESSIONE ROTAZ. ROTATION PRESSURE	bar	120	120	120	120	120	120	120	120
PORTATA APERT./CHIUS OPEN / CLOSE FLOW	l/min	8	20	25	40/60	80/100	100/120	90	120
PRESSIONE APERT / CHIUS OPEN / CLOSE PRESSURE	bar	200/250	200/300	230/320	320	320	320	320	320
ROTAZ. ROTATION		360°	360°	360°	360°	360°	360°	360°	360°
PESO ESCAV. EXCAV. WEIGHT	ton	1.5/4	3/6	5/10	9/14	15/21	20/29	28/40	37/60

A-A apertura – chiusura
opening – closing
offnen – schliessen
ouverture – serrement
abertura – cierre

B-B rotazione idraulica
hydraulic rotation
hydraulise drehung
rotation hydraulique
rotación hidráulica

MAINTENANCE AND REPAIR

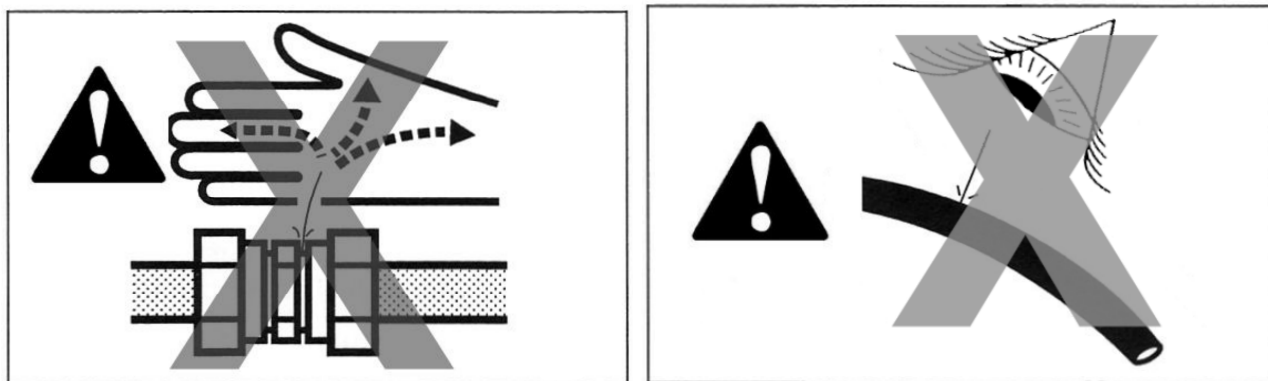
ATTENTION: ANY OPERATION REQUIRING THE OPERATOR'S DIRECT PARTICIPATION (INSPECTIONS, MAINTENANCE) SHALL BE CARRIED OUT WHEN THE MACHINE IS NOT WORKING AND OUR EQUIPMENT IS STEADY ON THE GROUND.

ATTENTION: THE INSTALLER, OPERATOR AND MAINTENANCE PERSONNEL MUST WEAR THE SUITABLE PROTECTION DEVICES SPECIFIED BY THE RELEVANT SAFETY LEGISLATION IN FORCE IN THE COUNTRY WHERE THE EQUIPMENT IS USED.

ATTENTION: VTN EUROPE DECLINES ALL LIABILITY IN THE EVENT OF ACCIDENTS IF THE INSTALLER, OPERATOR OR MAINTENANCE PERSONNEL FAIL TO USE THE SUITABLE SAFETY DEVICES.

ATTENTION: MAINTENANCE AND REPAIR OF THE ATTACHMENT HAVE TO BE DONE ONLY BY QUALIFIED PERSONAL.

CAUTION : Thin sprays of high pressure hydraulic liquid can penetrate skin. **DO NOT** use your finger to search for any leaks. **DO NOT** place your face close to suspected leaks. To highlight signs of hydraulic leaks, place a piece of cardboard close to the suspected leaks and then inspect the cardboard itself. If the hydraulic fluid penetrates your skin, do immediately call for medical help.



It is of the utmost importance for a safe working that the following inspections and maintenance should be carried out carefully and regularly :

EVERY TIME THE MACHINE IS USED:

Make sure the pipes are in perfect conditions and check the hydraulic fittings.

EVERY 40 HOURS OF USE OF THE EQUIPMENT :

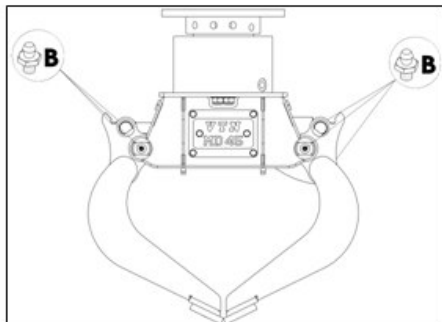
Check that the screws are undamaged and securely tightened according to the enclosed table at the end of this manual.

- **With reference to UNI ISO 4406, THE LEVEL OF FLUID CONTAMINATION MUST BE IN CLASS 19/15 OR BETTER ;**
- **With reference to ISO 16889, THE FLUID MUST FEED THE CYLINDER BY PASSING THROUGH A PRESSURISED FILTER with features in compliance with UNI ISO 7744 ;**
- **The temperature of the oil in use SHALL NEVER EXCEED 70 °C .**

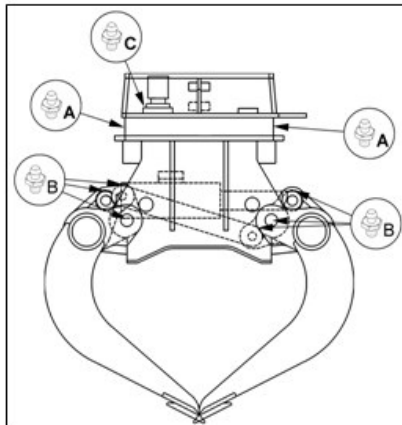
CAUTION : If the attachment breaks down, contact the manufacturer or, in any case an skilled personnel. Neither the attachment itself nor its functionality may be modified in any way.

GREASING

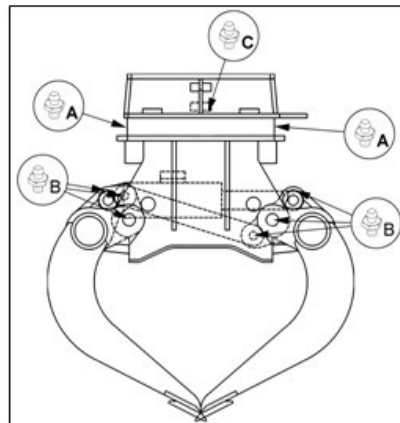
MD45



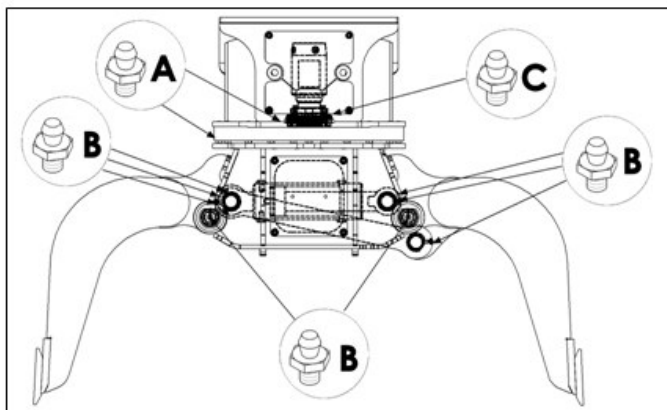
MD65/ MD100



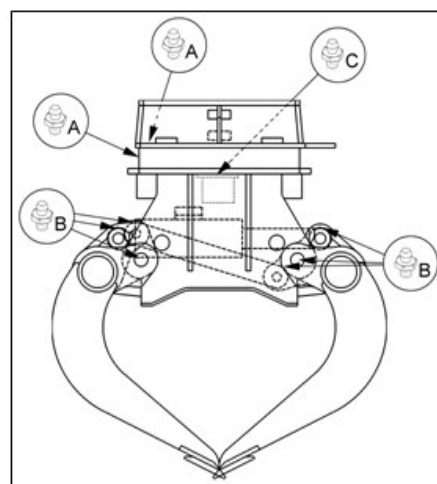
MD140



MD 210 – MD290



MD3140 - MD4150



EVERY 40 HOURS OF OPERATION, GREASE POINTS **B** WITH 5/6 SQUEEZES OF THE GREASE GUN. MOVE AWAY FROM THE EQUIPMENT AND USE THE EXCAVATOR OPENING AND CLOSING CONTROLS TO CLOSE AND OPEN THE JAWS 3/4 TIMES, THEN GREASE AGAIN.

EVERY 40 HOURS OF OPERATION, GREASE THE ROTATION MOVEMENT AT POINT **A**. SQUEEZE THE GREASE GUN 4/5 TIMES. MOVE AWAY FROM THE EQUIPMENT AND USE THE EXCAVATOR CONTROLS TO ROTATE IT FOR 10 SECONDS, THEN GREASE AGAIN.

EVERY 40 HOURS OF OPERATION, GREASE THE ROTATION MOVEMENT AT POINT **C**. SQUEEZE THE GREASE GUN 1/2 TIMES.

WARNING: MORE FREQUENT LUBRICATION IS RECOMMENDED IN THE TROPICS, IN VERY HUMID AREAS, IN DUSTY ENVIRONMENTS, IN PLACES WITH SIGNIFICANT LEVELS OF IMPURITIES AND WITH WIDE TEMPERATURE FLUCTUATIONS.

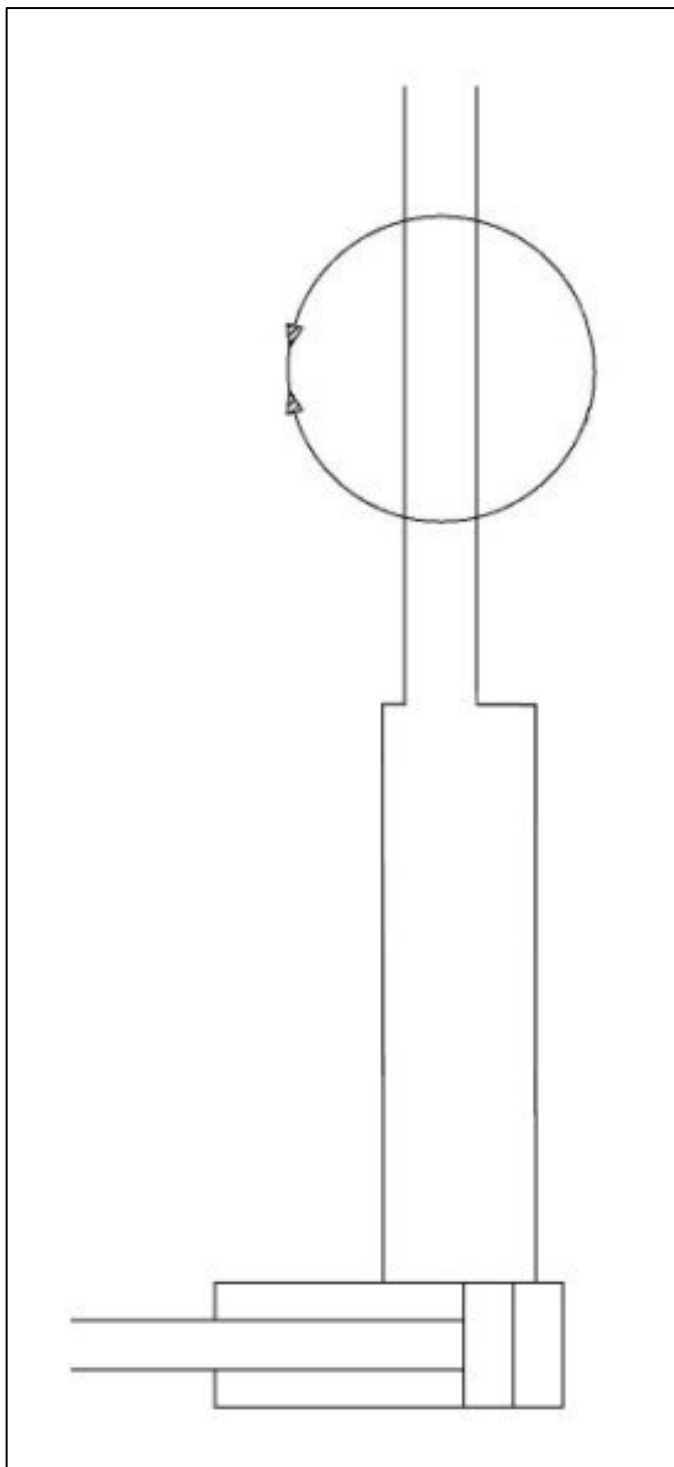
INFORMATION ON AIR NOISE OF THE ATTACHMENT, OR OTHER IDENTICAL ATTACHMENT

The equivalent continuous sound pressure level weighted in the workplaces is less than 70 dB (A).

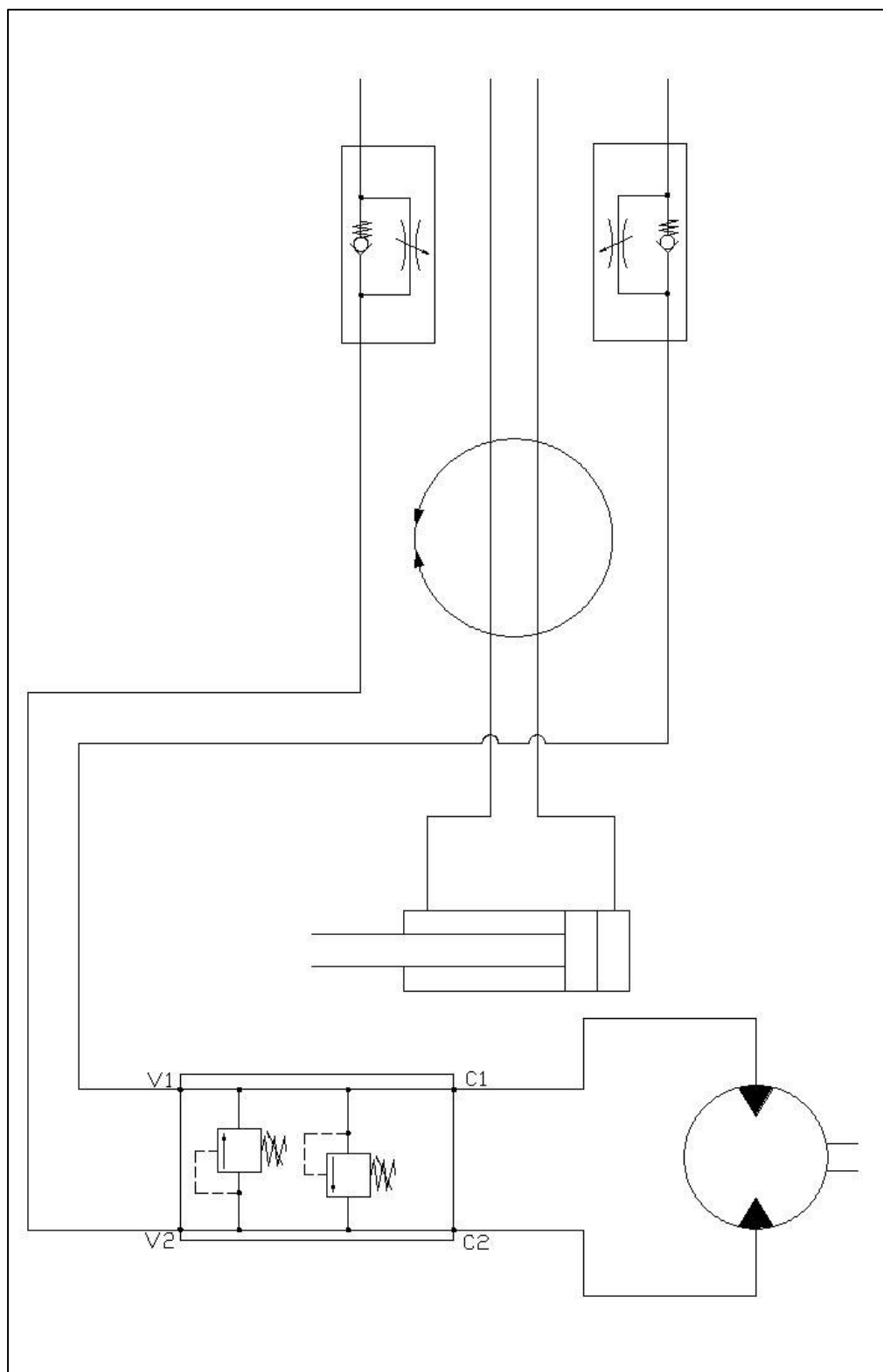
INFORMATION ON DISPOSAL OF HAZARDOUS SUBSTANCES

CAUTION : The liquid used in the hydraulic system must NOT be dumped in the environment. Once used it must be disposed of as provided by law.

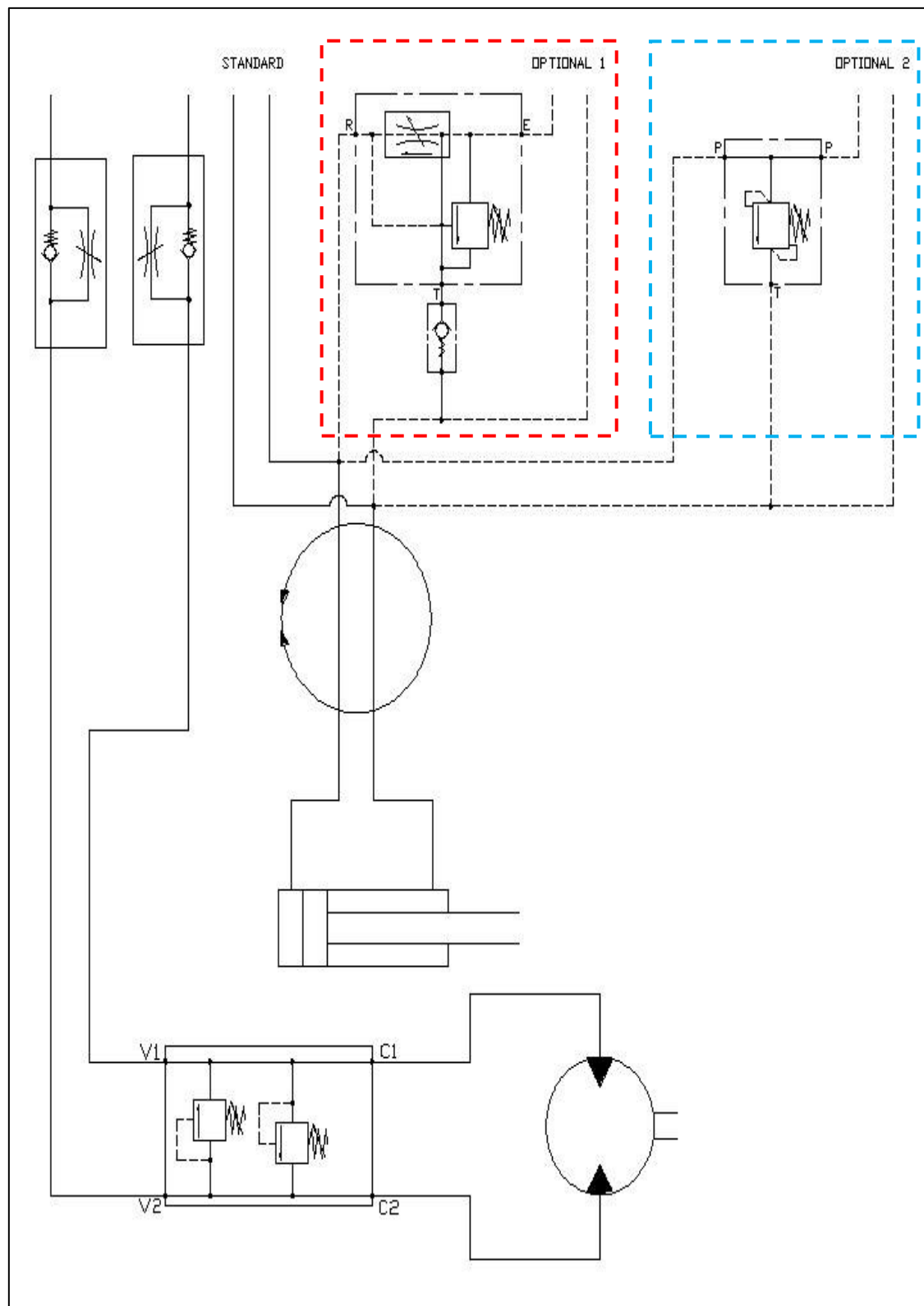
HYDRAULIC SCHEME " MD 45"



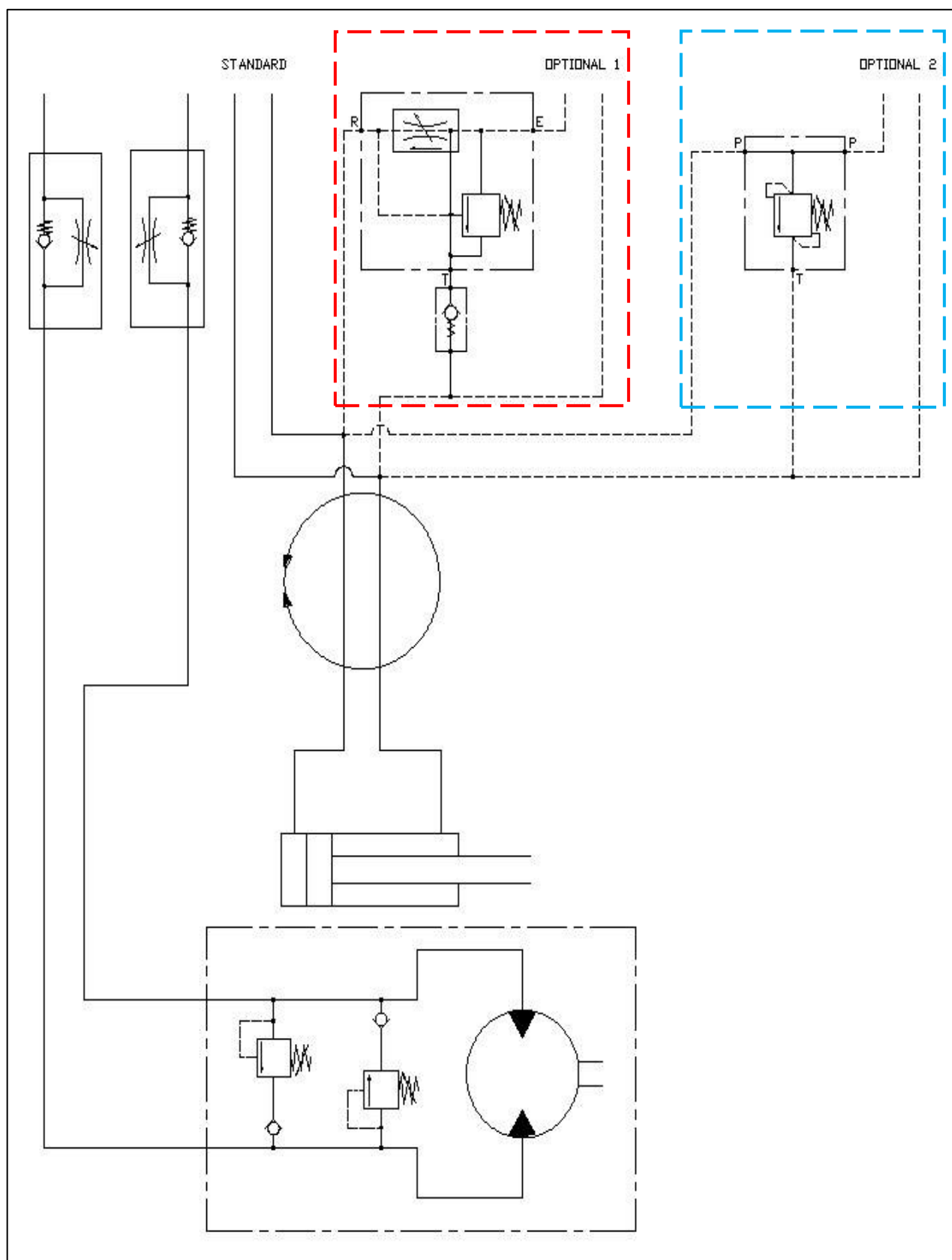
HYDRAULIC SCHEME " MD 65 / 100 "



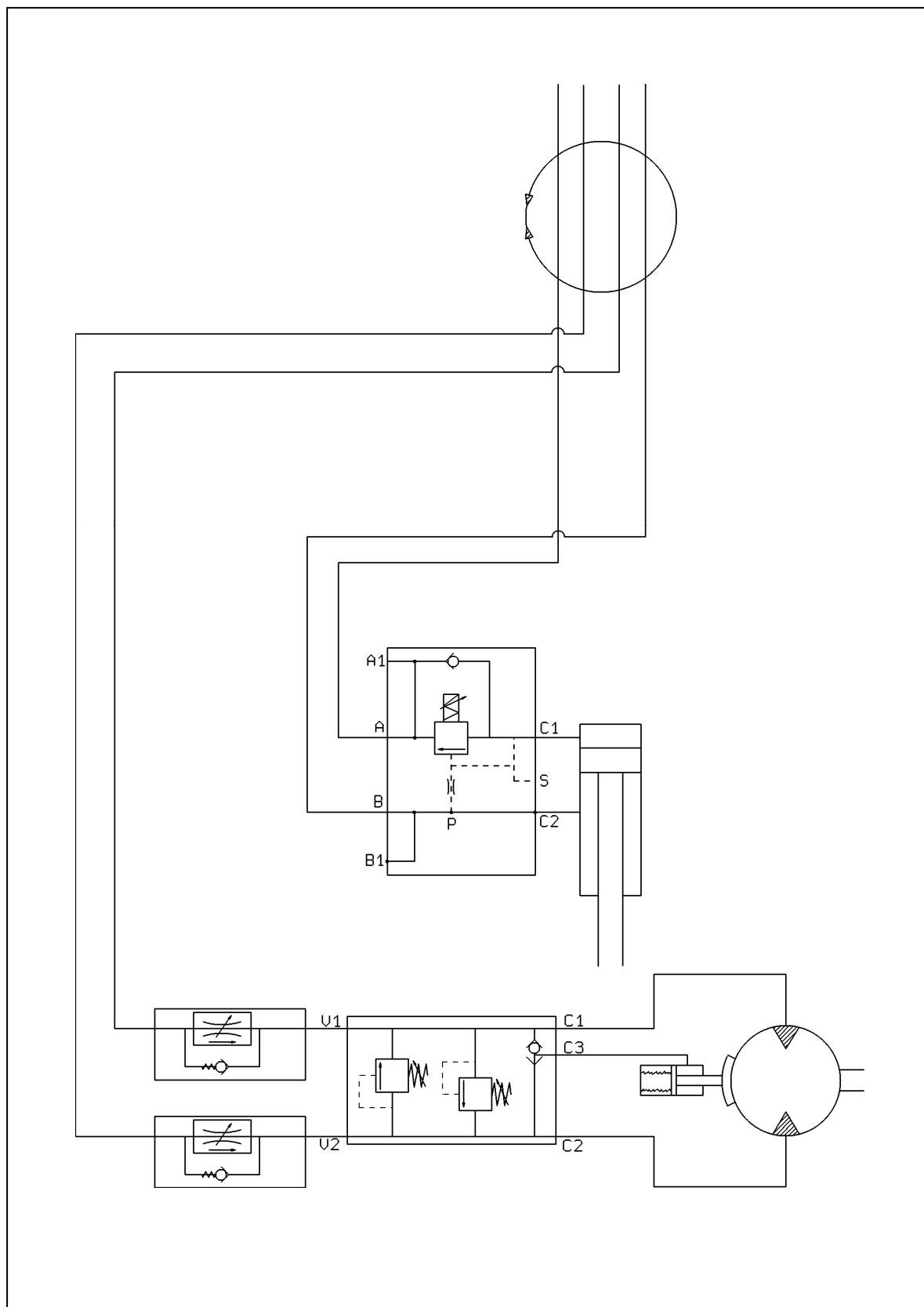
HYDRAULIC SCHEME " MD 140 "



HYDRAULIC SCHEME " MD 210 -290 "

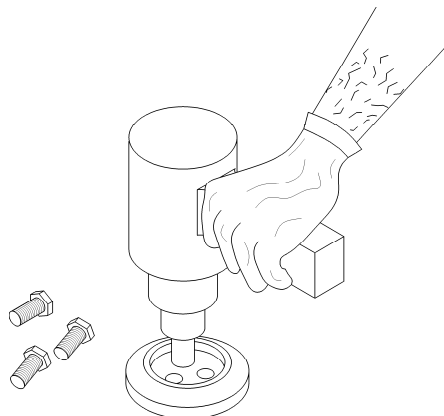


HYDRAULIC SCHEME " MD 4150"



THE TIGHTENING TORQUE IN THE TABLE ARE VALID APPROXIMATELY FOR THE FOLLOWING CONDITIONS :

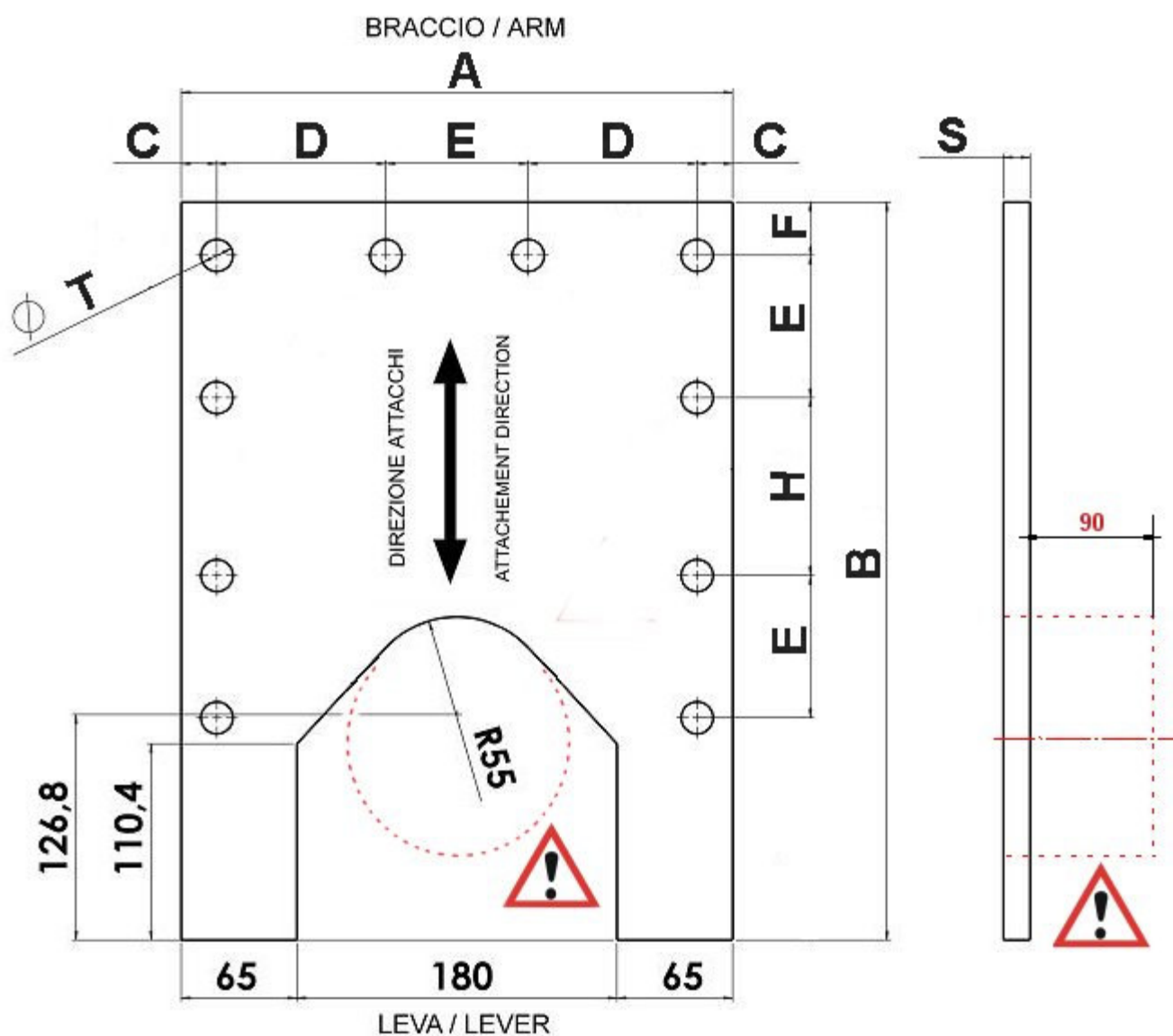
- Hexagonal- head screws (UNI 5737 type), cylindrical-head screws (UNI 5931 and UNI 6107 type).
- The tightening torque must be applied slowly with dynamometric wrenches.



NORM				8.8		10.9		12.9	
Ø bolt	hexagon	Metric Thread		Metric Thread		Metric Thread		Metric Thread	
↓	mm	coarse mm	fine mm	coarse Nm	fine Nm	coarse Nm	fine Nm	coarse Nm	fine Nm
M8	13	1,25	1,0	25	27	35	38	42	46
M10	17	1,5	1,25	50	53	70	74	84	89
M12	19	1,75	1,5	85	89	119	125	143	150
M14	22	2,0	1,5	135	148	190	208	228	250
M16	24	2	1,5	212	226	298	318	357	382
M18	27	2,5	2,0	290	310	402	436	490	523
M20	30	2,5	2,0	413	436	580	614	697	736
M22	34	2,5	2,0	568	597	798	840	958	1.008
M24	36	3,0	2,0	714	781	1.004	1.098	1.204	1.317
M27	41	3,0	2,0	1.050	1.139	1.477	1.602	1.772	1.923
M30	46	3,5	2,0	1.429	1.590	2.009	2.236	2.411	2.648
M33	50	3,5	2,0	1.941	2.136	2.729	3.004	3.275	3.605
M36	55	4,0	3,0	2.497	2.652	3.511	3.730	4.213	4.476

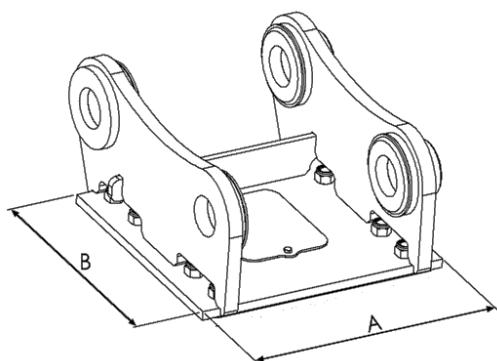
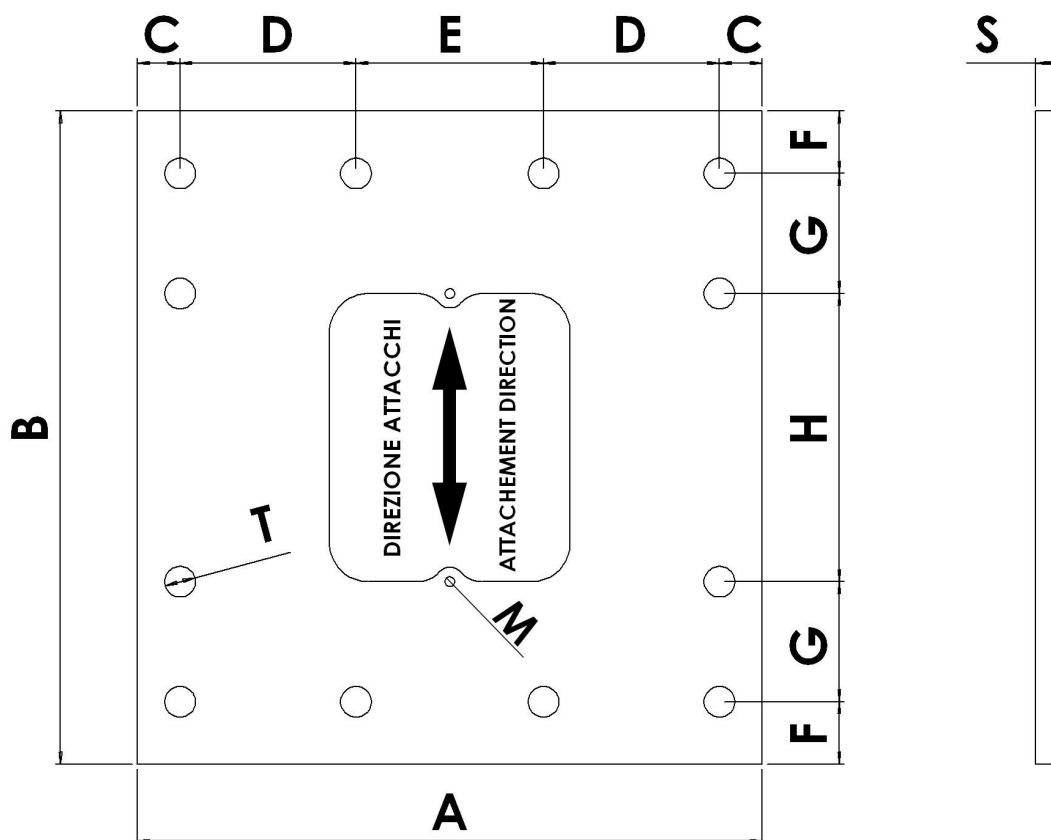
HOLED ADAPTER PLATE

"MODEL MD65 / 100"



Model	Dimension										
	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	S (mm)	T (mm)	BOLT
MD 65	310	415	20	95	80	30	/	100	15	18	M16
MD 100	310	415	20	95	80	30	/	100	15	18	M16

MODELL "MD45 - MD140 - MD210 – MD290- MD 3140 – MD4150"



Model	Dimension										
	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	S (mm)	T (mm)	BOLT
MD 45	285	300	20	122,5	/	30	120	/	10	17	M16
MD 140	405	560	22,5	100	160	40	160	160	15	22	M20
MD 210	650	680	44,5	183	195	65	125	300	25	32	M30
MD 290	650	680	44,5	183	195	65	125	300	25	32	M30
MD3140	720	800	70	175	230	50	137.5	425	30	39	M36
MD4150	720	800	70	175	230	50	137.5	425	30	39	M36