Rev.01
03/07/2025

Chapter 11

HYDRAULIC PIPING
RIGID PIPES
BY-PASS

Moris Italia s.r.l.
Via Per Cadrezzate, 21/C
21020 Brebbia (VA) - Italy
Tel. ++39 0332 984211 - Fax ++39 0332 984280
e-mail moris@moris.it
www.moris.it

MORIS ITALIA S.r.l. reserves the right to make changes without notice to all the documents Enclosed with this handbook and related production.

DRAWING	DESCRIPTION
9301/TAB-FLEX	Flexible hoses from power unit to piston characteristics
9300	Instructions for the correct installation of the rigid pipes (Ø 28x2 ; Ø 35x2,5 ; Ø 42x3)
9061	Pipe mounting brakets
9302/1	Rigid coupling between two pistons and a safety valve (Ø 45x5)
9302/2	Rigid coupling between two pistons and a safety valve (Ø 45x5)
9302/3	Rigid coupling between two pistons and a safety valve (Ø 45x5)
9302/6	Rigid coupling between two pistons and a safety valve (Ø 45x5)
9302/7	Rigid coupling between two pistons and a safety valve (Ø 45x5)
9303/1	Rigid coupling between two pistons and a safety valve (Ø 60x5 – 2”)
9303/2	Rigid coupling between two pistons and a safety valve (Ø 60x5 – 2”)
9303/3	Rigid coupling between two pistons and a safety valve (Ø 60x5 – 2”)
9303/4	Rigid coupling between two pistons and a safety valve (Ø 60x5 – 2”)
TAV00000052-A0	Hose connections to piston without rupture valve
TAV00000052-A1	Hose connections to piston without rupture valve with ball valve
9682	Component assembly on the tank for “BY-PASS” between two coupled exchanges

9301/TAB-FLEX-ING

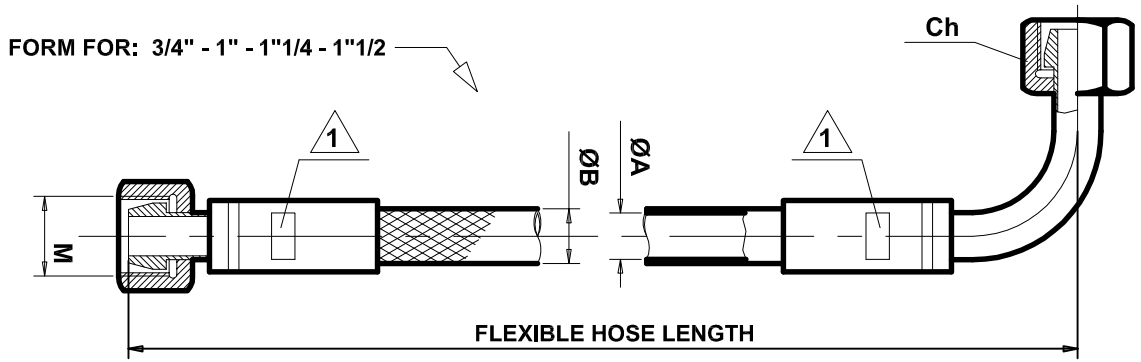
UT

FLEXIBLE HOSES FROM POWER UNIT TO PISTON CHARACTERISTICS

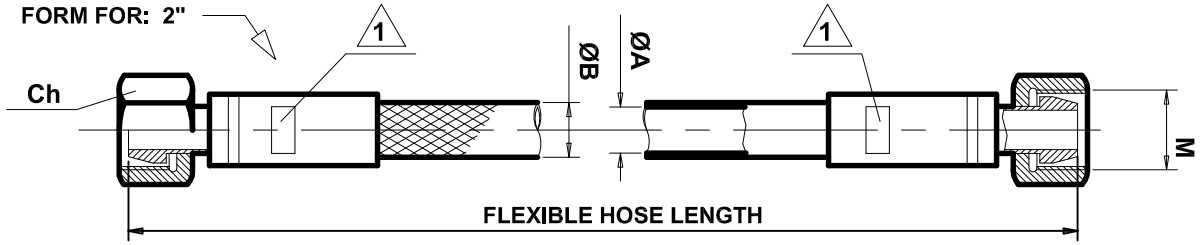
DWG N. 9301/TAB-FLEX

DATE 06/19

FORM FOR: 3/4" - 1" - 1"1/4 - 1"1/2



FORM FOR: 2"



* - CALCULATED ACCORDING: EN 81.20

** - METRIC FITTING 24° DKOL

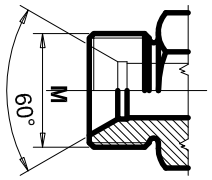
*** - BSP FITTING 60°

- APPLICATION: MINERAL BASED HYDRAULIC OIL AND GLYCOL-BASED ANTIFREEZE

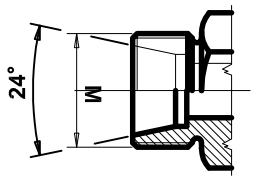
- FLEXIBLE HOSE COMPOSITION:
  OIL RESISTANT SYNTHETIC RUBBER INNER LAYER, ONE OR TWO STEEL BRAID REINFORCEMENT, ABRASION OZONE AND HYDROCARBON RESISTANT, SYNTHETIC RUBBER COATING

- TEMPERATURE RANGE: -40°C TO +100°C

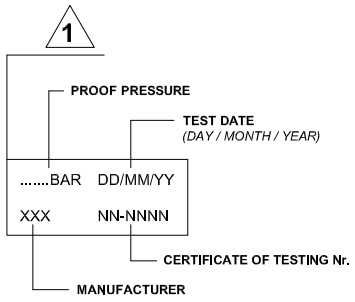
HOSE SIZE	I.D. A NOMINAL	O.D. B MAX	Ch	MIN. BEND RADIUS	M	WEIGHT	MAX. OPERATING PRESSURE	MIN. BURST PRESSURE *	TEST PRESSURE *
	(mm)					(Kg/m)	(Bar)		
3/4" (DN19)	19	28.5	36	240	30x2 **	0.6	50	400	250
1" (DN25)	25	34.9	41	300	36x2 **	0.74	50	400	250
1"1/4 (DN32)	32	44	50	420	45x2 **	1.22	50	400	250
1"1/2 (DN38)	38	58.8	60	500	52x2 **	2.55	50	400	250
2" (DN50)	51	68.6	70	630	BSP 2" ***	3.01	50	400	250

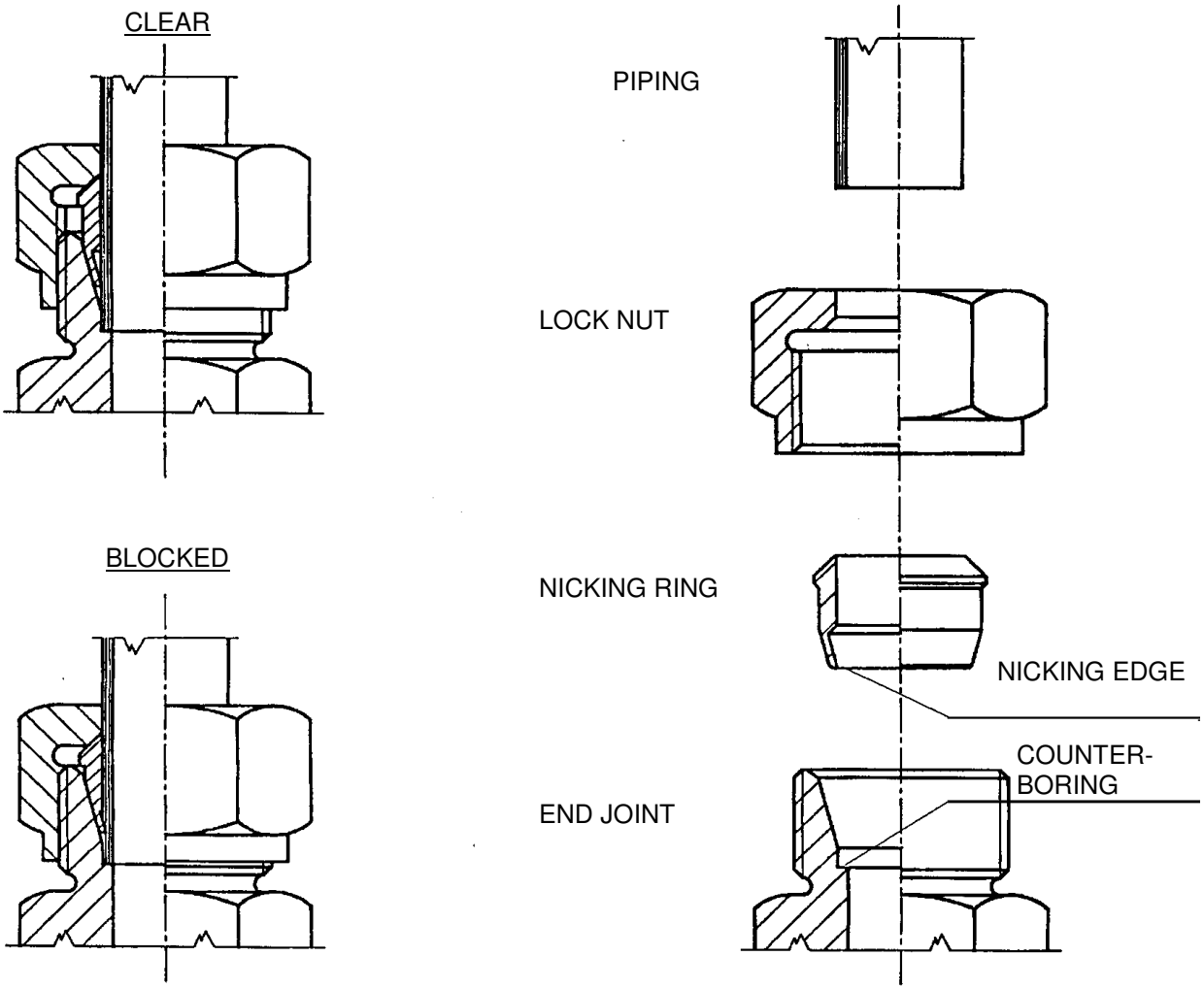


MALE FITTING: 60°



MALE FITTING: 24°





1) FOLLOW THE CUT OF THE PIPE CLOSELY AT RIGHT ANGLES.

2) THE PIPE MUST BE FREE OF BURR OR ANY INTERNAL IMPURITIES.

3) THE RING AND THREADS MUST BE LUBRICATED DURING INSTALLATION.

4) FIRSTLY INSERT THE LOCK NUT AND THEN THE NICKING RING WITH THE NICKING EDGE TURNED TOWARDS THE END JOINT.

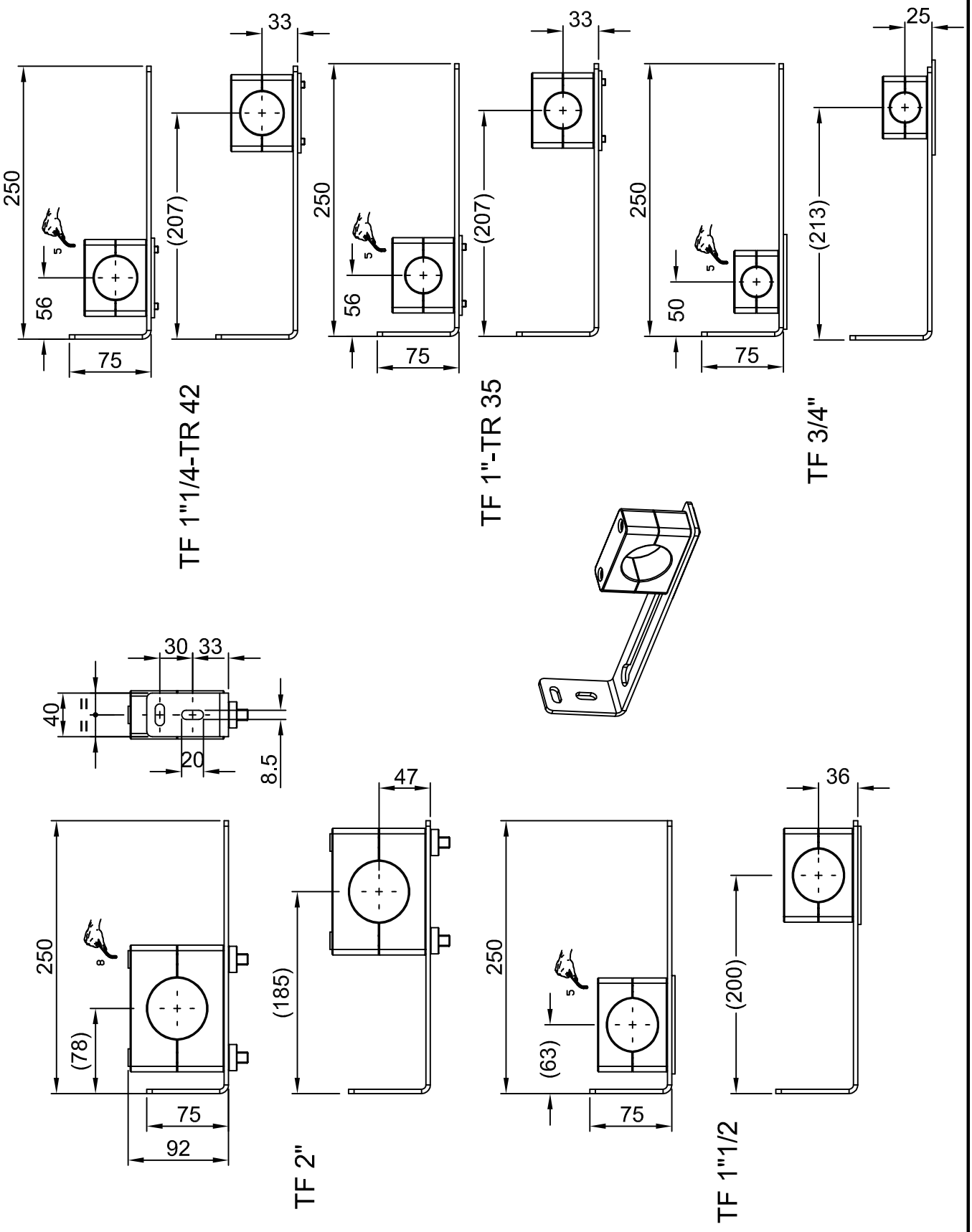
5) THE PIPE MUST THEN BE INSERTED INTO THE END JOINT AND MUST REST AGAINST THE COUNTERBORING. THE LOCK NUT MUST THEN BE TIGHTEND BY HAND AS FAR AS POSSIBLE.

6) TAKE A SPANNER WITH AN EXTENSION, AND TIGHTEN THE LOCK NUT AT LEAST 1 AND ½ TURNS UNTIL THE NICKING EDGE TOUCHES THE PIPE (AS SHOWN ABOVE)

7) LOOSEN THE LOCK NUT, CHECKING THAT THE NICKING RING IS ABOUT 5 mm PROJECTING FROM THE PIPE OUTSIDE: CHECK THAT IT DOES NOT MOVE FROM THIS POSITION, AND THAT AT THE NICKING POINT THERE IS AN EVEN RIM THAT SHOWS THE OCCUREDE NICKING.

8) PROCEED WITH THE TIGHTENING AND BLOCKING OF LOCK NUT.

UT	**INSTRUCTIONS FOR THE CORRECT INSTALLATION OF THE PIPE-WORK**	DATE 07/00
		DWG N **9300**



UT			PIPE MOUNTING BRAKETS	DATE 01/19
				DWG Nr 9061

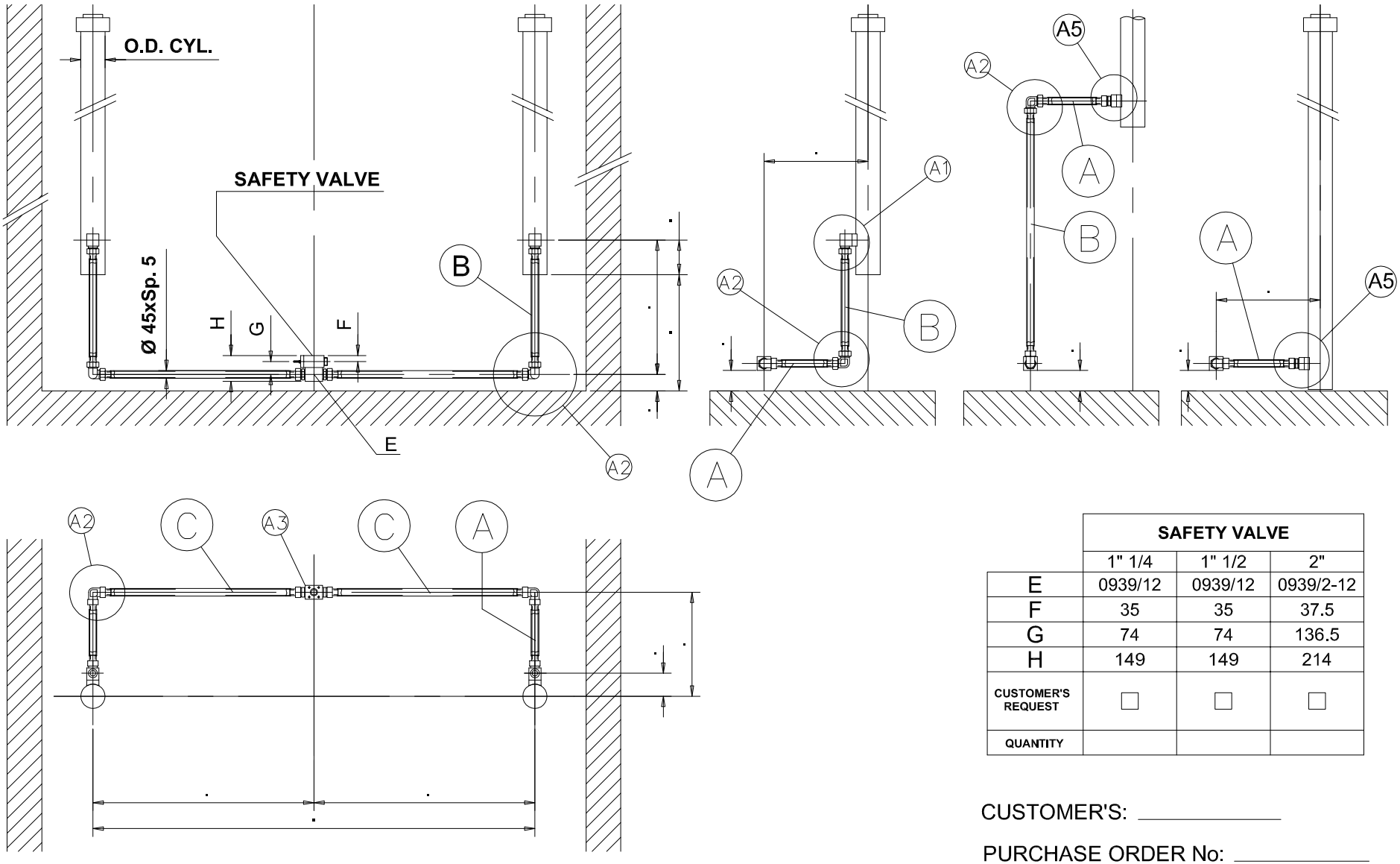
9302/1-ING

UT

EXAMPLES OF POSSIBLE RIGID COUPLING (Ø 45x5 PIPES) BETWEEN TWO PISTONS AND A SAFETY VALVE (1"1/4; 1"1/2; 2")

DATE 10/12

DWG No 9302/1



	SAFETY VALVE		
	1" 1/4	1" 1/2	2"
E	0939/12	0939/12	0939/2-12
F	35	35	37.5
G	74	74	136.5
H	149	149	214
CUSTOMER'S REQUEST	☐	☐	☐
QUANTITY			

CUSTOMER'S: _____

PURCHASE ORDER No: _____

NOTE:

- FOR SIZING OR DIFFERENT CONFIGURATIONS FROM THOSE REPRESENTED OF Ø 45x5 WELDED PIPES, CONTACT MORIS SALES DEPARTMENT

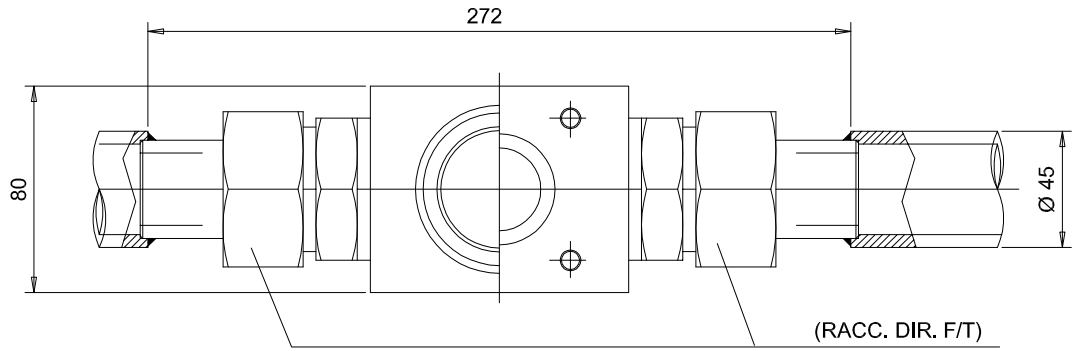
9302/2-ING

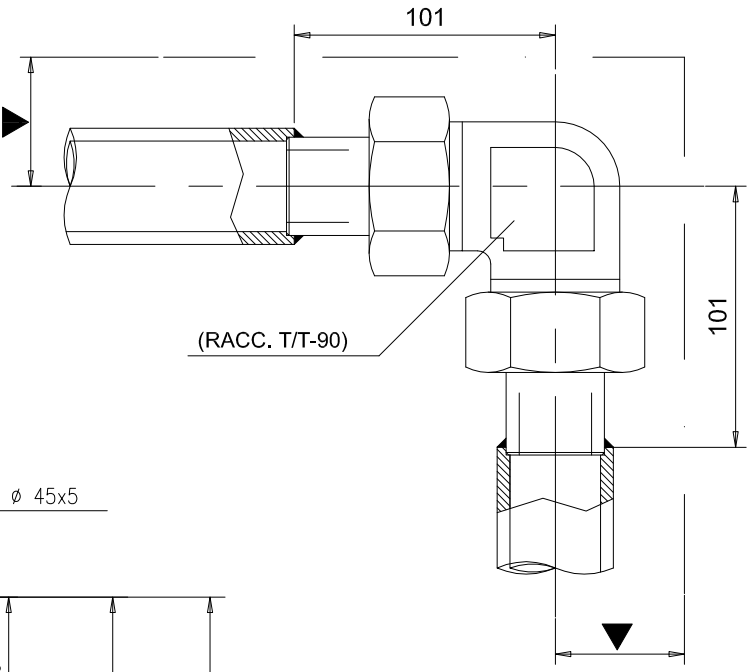
UT

DETAILS ABOUT RIGID COUPLING (Ø 45x5 PIPES) BETWEEN TWO PISTONS AND A SAFETY VALVE (1"1/4; 1"1/2; 2")

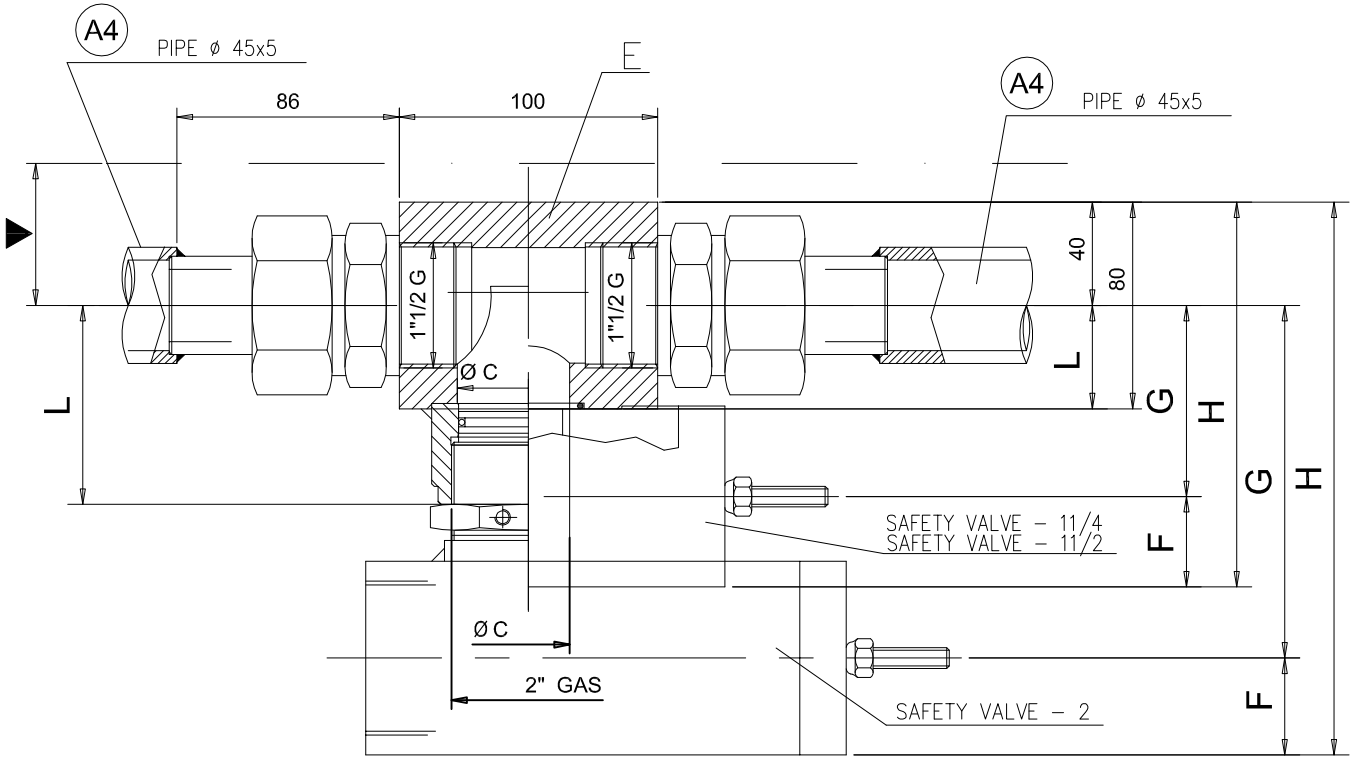
DATE 10/12

DWG No 9302/2





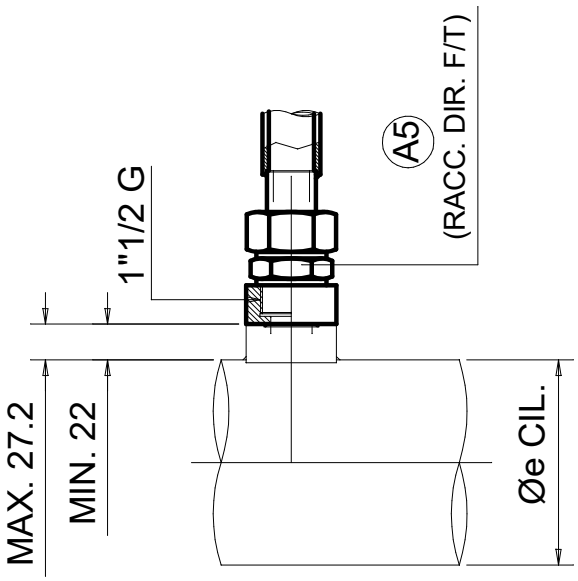
SOLUTION: A2

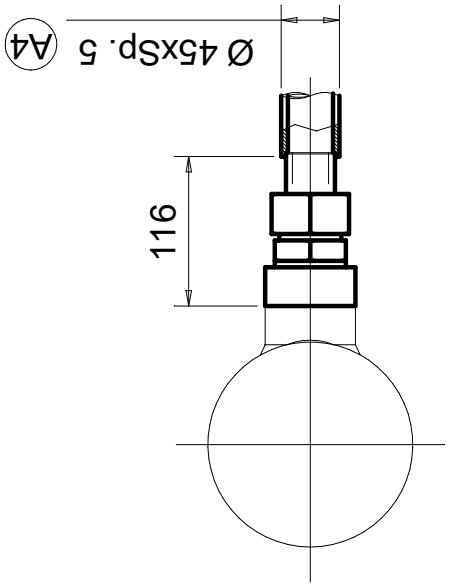


SOLUTION: A3

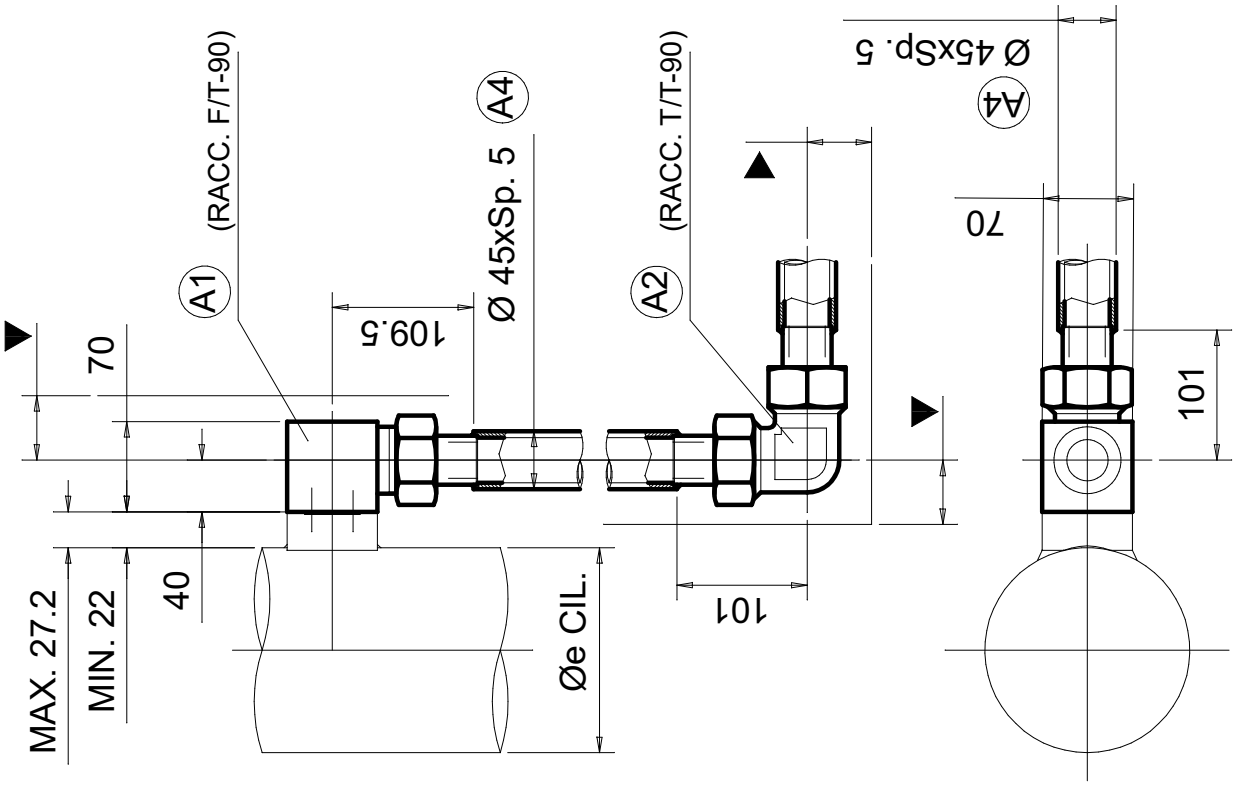
	SAFETY VALVE		
	TYPE 11/4	TYPE 11/2	TYPE 2
C	ø 32	ø 32	ø 55
E	0939/12	0939/12	0939/2-12
F	35	35	37.5
G	74	74	136.5
H	149	149	214
L	40	40	77
CUSTOMER'S REQUEST	☐	☐	☐

▼ = 50 mm, MIN. DISTANCE FOR ASSEMBLY RECOMMENDED





SOLUTION "B"



SOLUTION "A"

▼ = 50 mm, MIN. DISTANCE FOR ASSEMBLY RECOMMENDED

UT	DETAILS ABOUT RIGID COUPLING (Ø 45x5 PIPES) BETWEEN TWO PISTONS AND A SAFETY VALVE (1"1/4; 1"1/2; 2")	DATA 09/23
		DIS. N° 9302/3

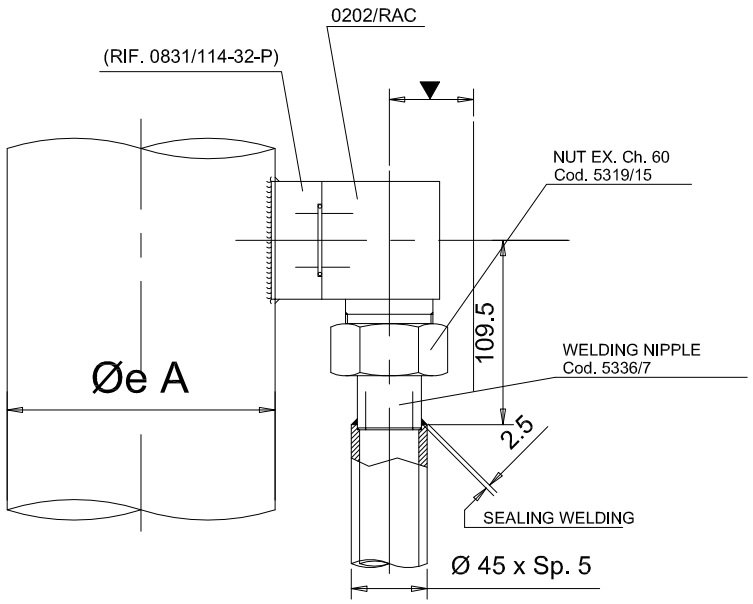
9302/6-IN

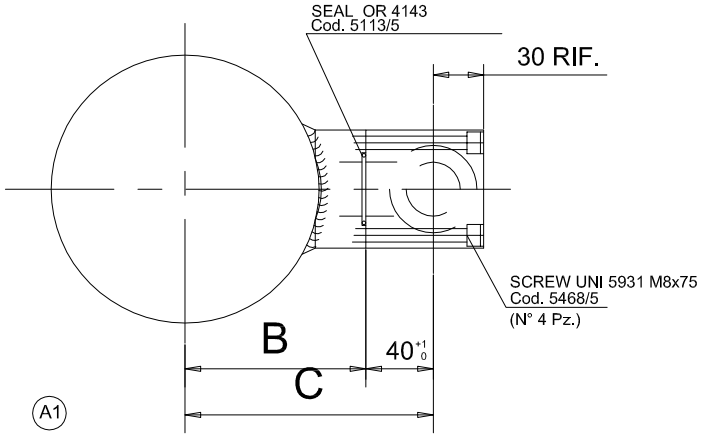
UT

RIGID COUPLING BETWEEN TWO PISTONS AND A SAFETY VALVE (1"1/4; 1"1/2) SOLUTION A

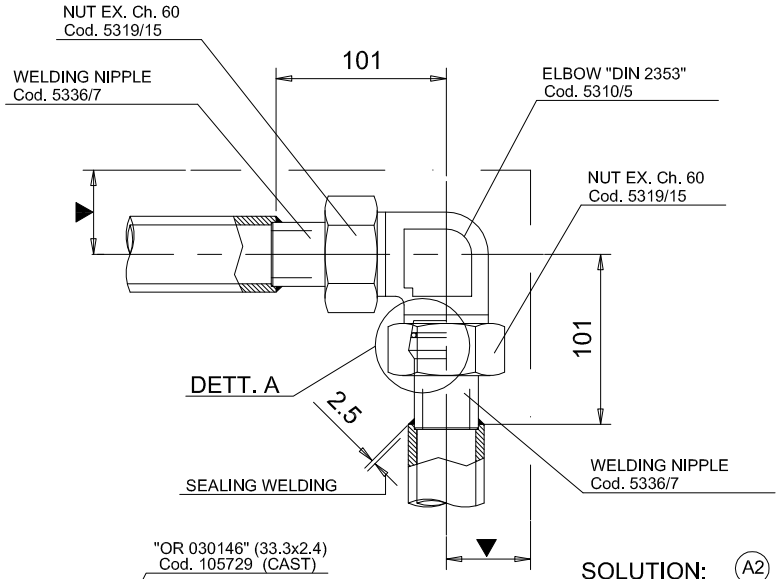
DATE 07/18

DWG. N° 9302/6

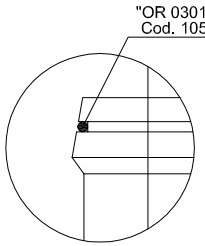




SOLUTION: (A1)



SOLUTION: (A2)



DETT. A

Øe A	B	C
101.6	72.8	112.8
114.3	79.2	119.2
133	89.4	129.4
139.7	93.1	133.1
159	103.7	143.7
177.8	113.7	153.7
193.7	122.1	162.1
219.1	135.4	175.4
244.5	148.5	188.5
273	163.2	203.2
323.9	189.2	229.2

▼ = 50 mm, MINIMUM RECOMMENDED DISTANCE FOR MOUNTING

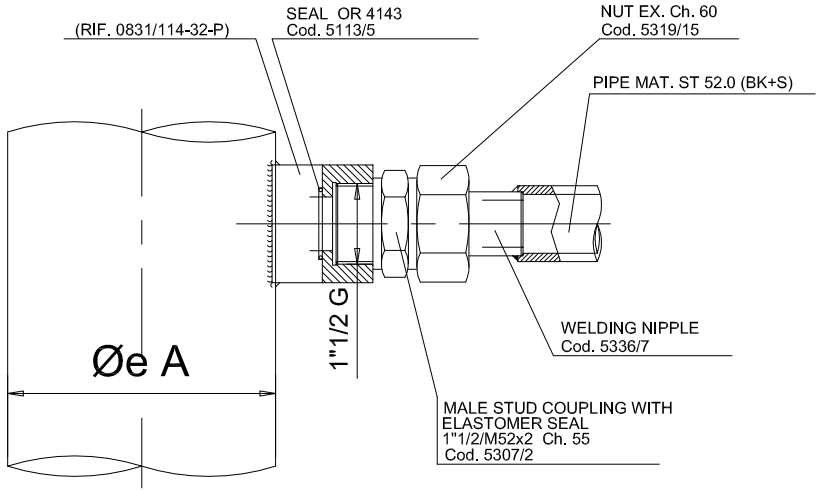
9302/7-IN

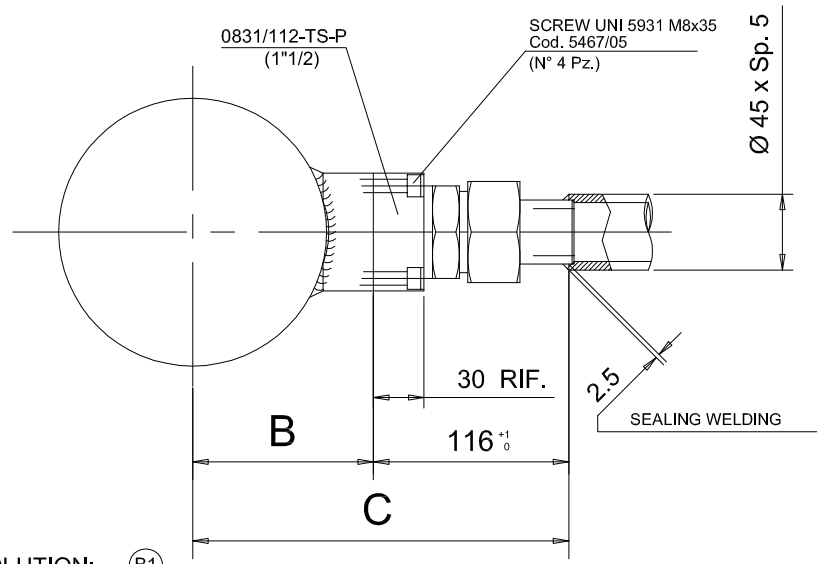
UT

RIGID COUPLING BETWEEN TWO PISTONS AND A SAFETY VALVE (1"1/4; 1"1/2) SOLUTION B

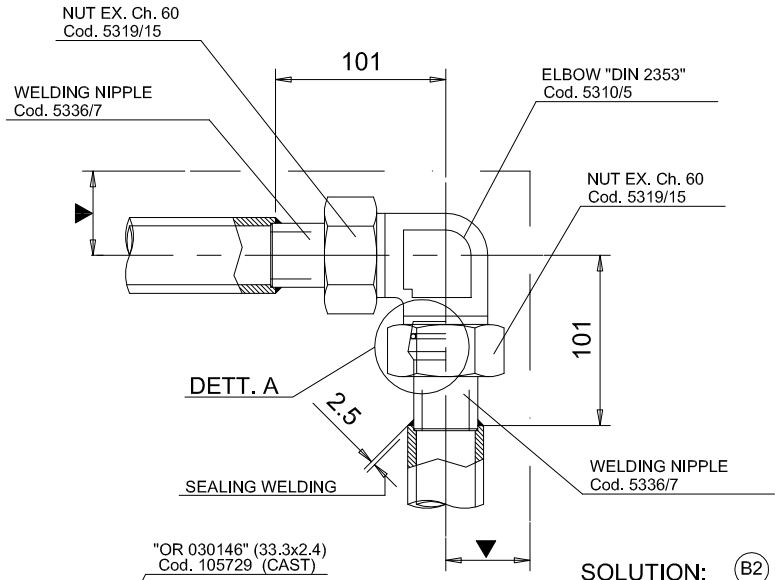
DATE 07/18

DWG. N° 9302/7





SOLUTION: (B1)



DETT. A

SOLUTION: (B2)

Øe A	B	C
101.6	72.8	188.8
114.3	79.2	195.2
133	89.4	205.4
139.7	93.1	209.1
159	103.7	219.7
177.8	113.7	229.7
193.7	122.1	238.1
219.1	135.4	251.4
244.5	148.5	264.5
273	163.2	279.2
323.9	189.2	305.2

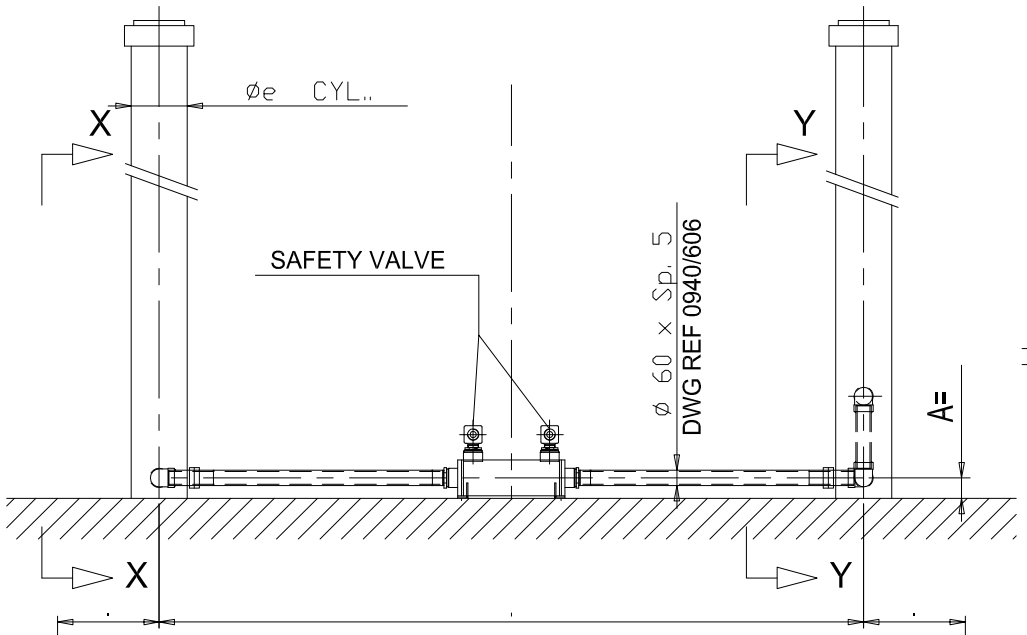
▼ = 50 mm, MINIMUM RECOMMENDED DISTANCE FOR MOUNTING

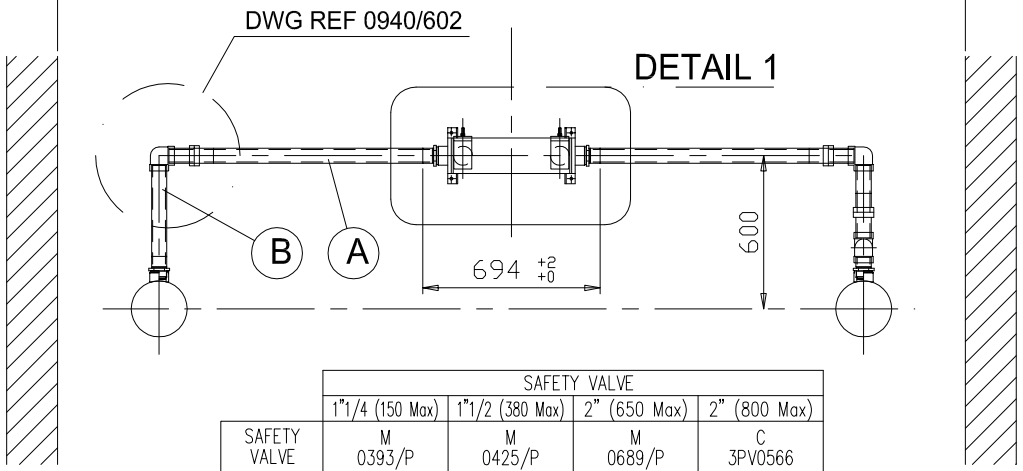
9303/1-IN

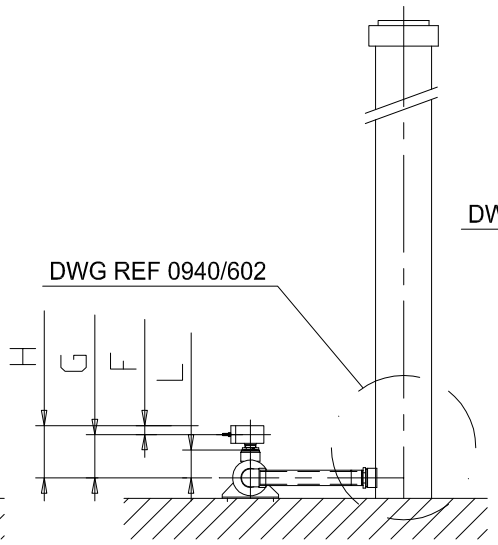
UT

RIGID COUPLING BETWEEN Nr 2 PISTONS AND Nr 2 SAFETY VALVE

(ø 60x5 - 2")

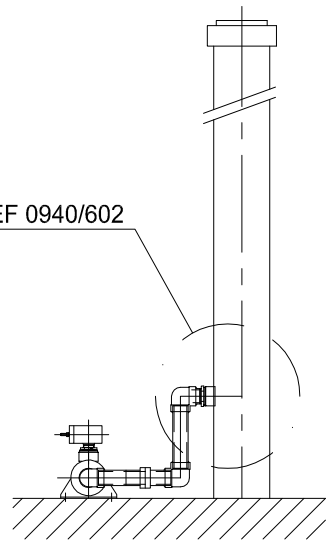






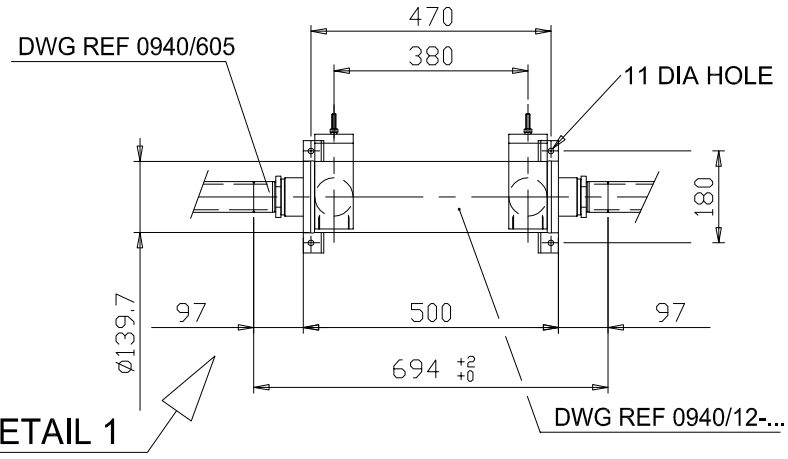
VIEW "X-X"

"STRAIGHT" SOLUTION ☐



VIEW "Y-Y"

"90° BEND" SOLUTION ☐



	SAFETY VALVE			
	1"1/4 (150 Max)	1"1/2 (380 Max)	2" (650 Max)	2" (800 Max)
SAFETY VALVE	M 0393/P	M 0425/P	M 0689/P	C 3PV0566
L	106.5	106.5	109	106
F	35	40	37.5	45
G	162	169	168.5	238
H	197	209	206	283
CUSTOMER,S REQUEST	☐	☐	☐	☐
QUANTITY	*	*	*	*

CUSTOMER'S: _____ PURCHASE ORDER NR: _____

NOTE:

* - FOR QUANTITY SAFETY VALVE SEE DWG 9303/2

- TO MARK THE CONSTRUCTIVE SOLUTION _ _ _ _ ☒

DATE 11/06

DWG Nr. 9303/1

9303/2-IN

UT

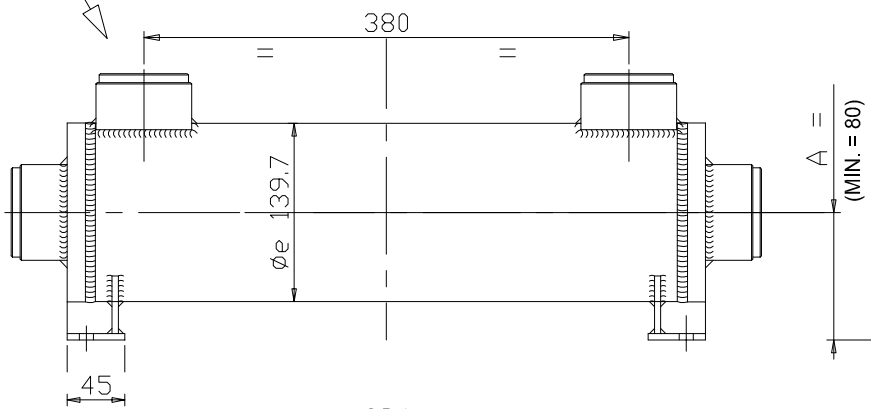
DELIVERY TANK WITH CONNECTION FOR TWO SAFETY VALVE

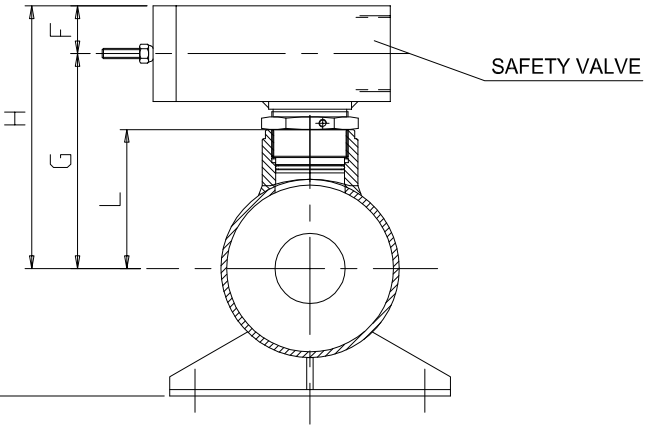
(ø 60x5 - 2")

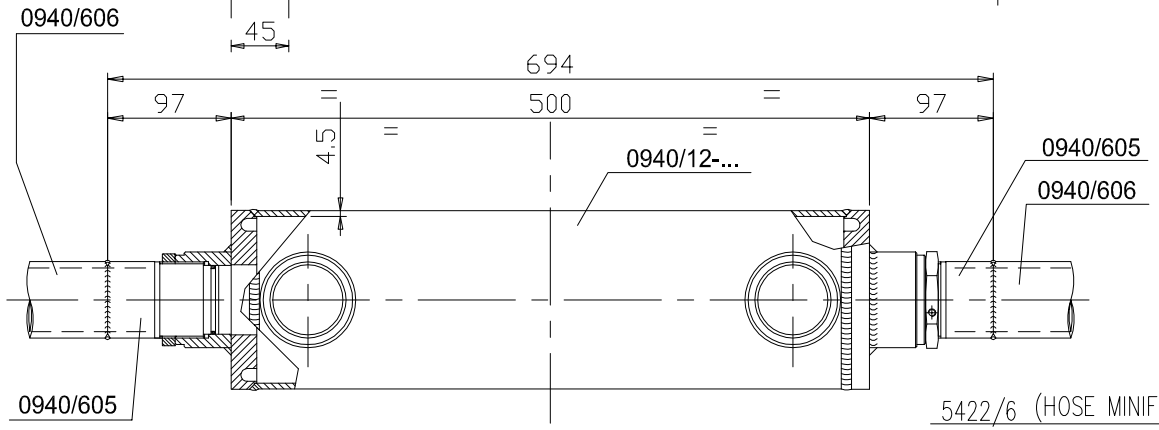
DATE 11/06

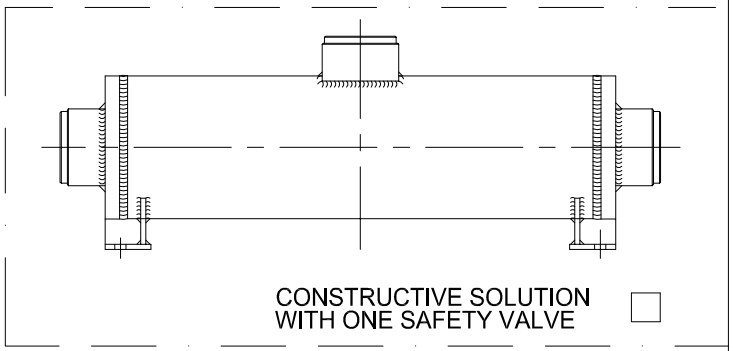
DWG NR 9303/2

CONSTRUCTIVE SOLUTION WITH TWO SAFETY VALVE

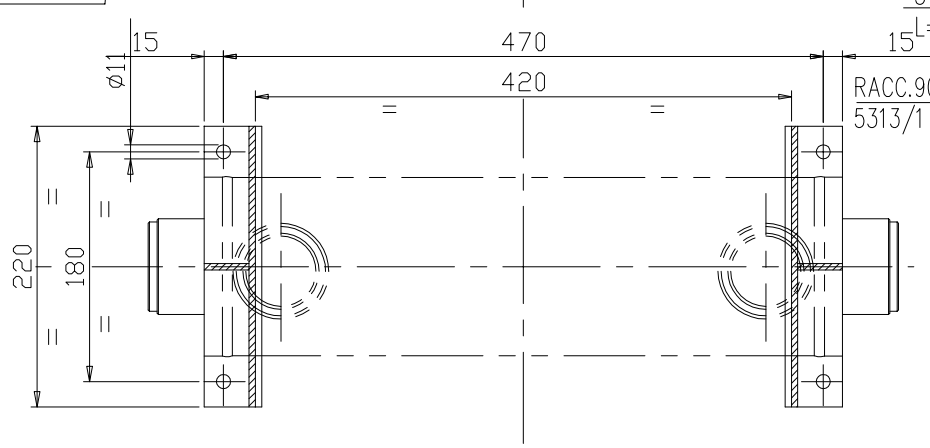


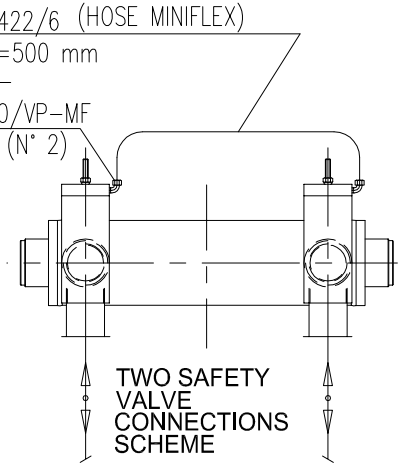






CONSTRUCTIVE SOLUTION WITH ONE SAFETY VALVE



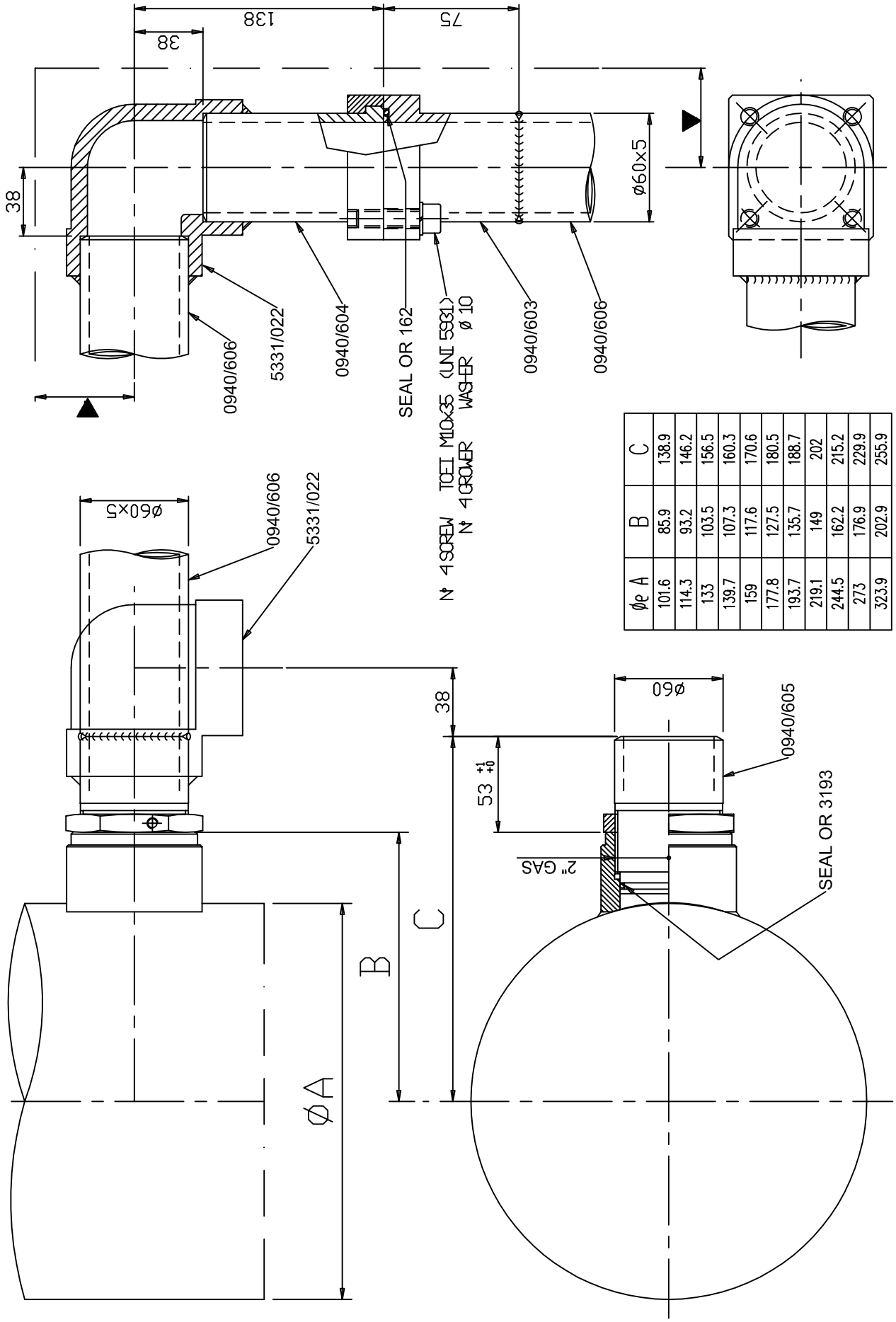


	SAFETY VALVE			
	1"1/4 (150 Max)	1"1/2 (380 Max)	2" (650 Max)	2" (800 Max)
SAFETY VALVE	M 0393/P	M 0425/P	M 0689/P	C 3PV0566
L	106.5	106.5	109	106
F	35	40	37.5	45
G	162	169	168.5	238
H	197	209	206	283
CUSTOMER,S REQUEST	☐	☐	☐	☐
QUANTITY				

TO MARK THE CONSTRUCTIVE SOLUTION ☒

CUSTOMER'S: _____

PURCHASE ORDER NR: _____



Øe A	B	C
101.6	85.9	138.9
114.3	93.2	146.2
133	103.5	156.5
139.7	107.3	160.3
159	117.6	170.6
177.8	127.5	180.5
193.7	135.7	188.7
219.1	149	202
244.5	162.2	215.2
273	176.9	229.9
323.9	202.9	255.9

UT	CONNECTION TO PISTON WHITH DIFFERENT CONNECTIONS SOLUTION (ø 60x5 - 2")	DATE 12/07
		DWG NR 9303/3

9303/3-IN

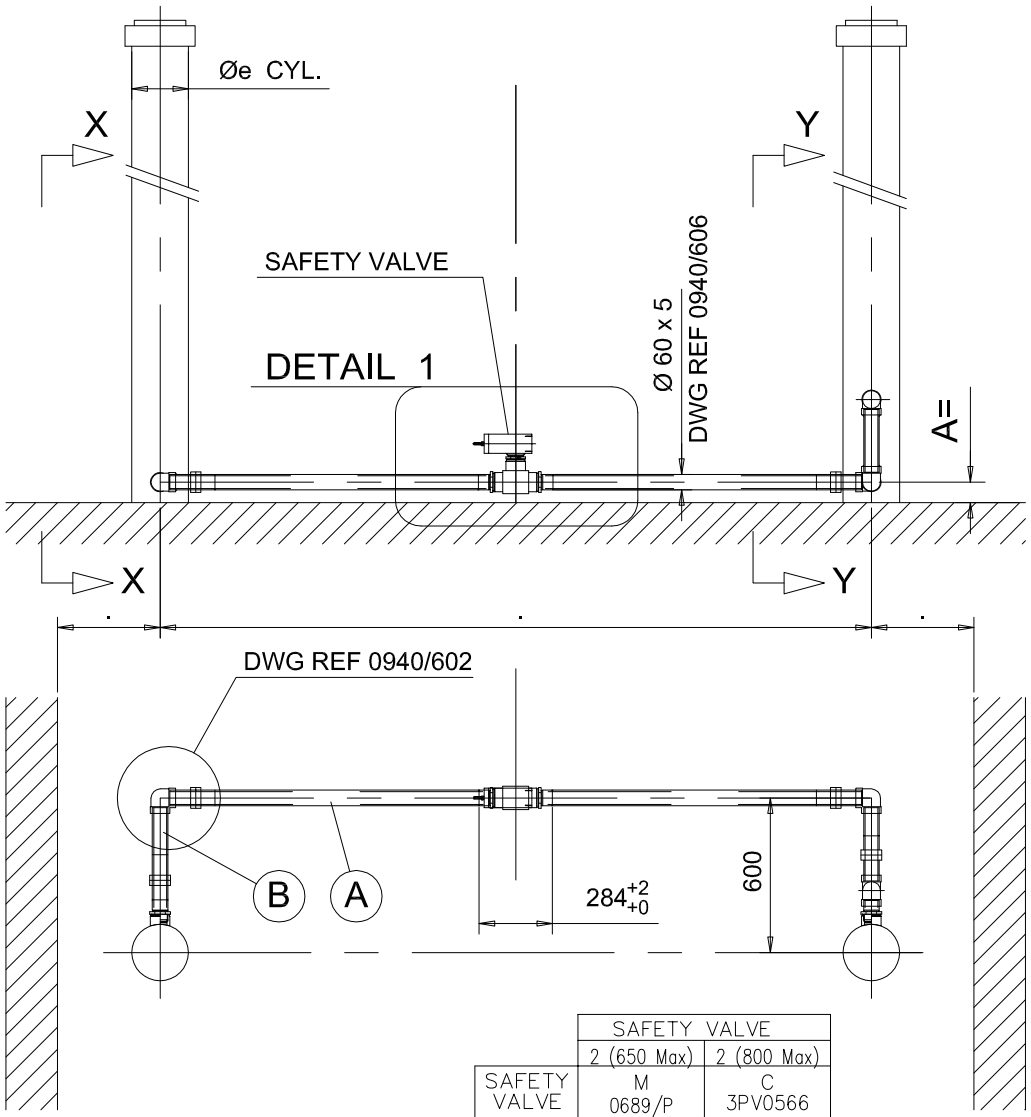
9303/4-IN

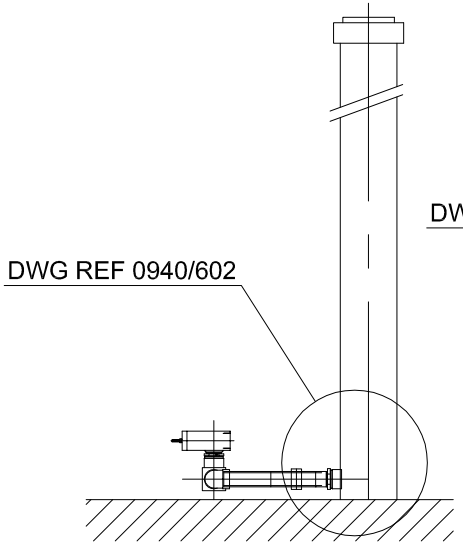
UT

RIGID COUPLING BETWEEN TWO PISTONS AND ONE SAFETY VALVE (Ø 60x5 - 2")

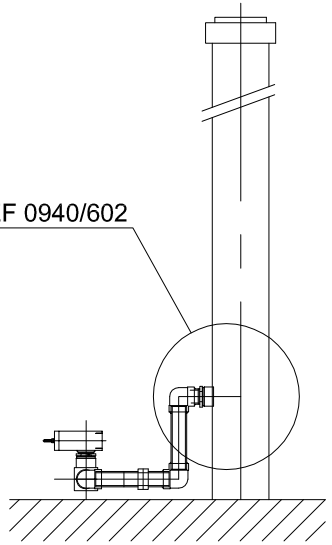
DATE 01/13

DWG Nr 9303/4

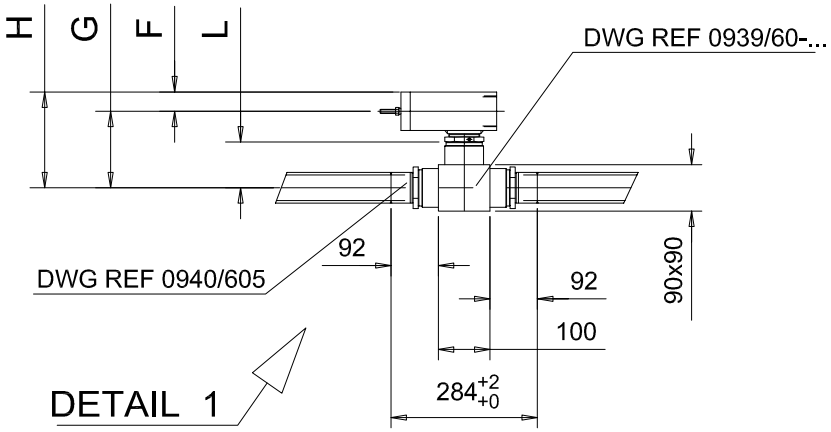




VIEW "X-X"
STRAIGHT SOLUTION ☐



VIEW "Y-Y"
90° BEND SOLUTION ☐



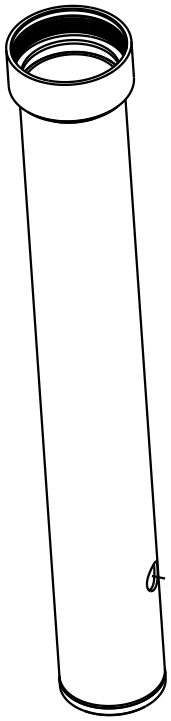
	SAFETY VALVE	
	2 (650 Max)	2 (800 Max)
SAFETY VALVE	M 0689/P	C 3PV0566
L	84	81
F	37.5	45
G	143.5	213
H	181	258
CUSTOMER,S REQUEST	☐	☐
QUANTITY	1	1

CUSTOMER'S:_____ PURCHASE ORDER NR:_____

NOTE:

- TO MARK THE CONSTRUCTIVE SOLUTION ☒

1"1/4 G 1"1/2 G

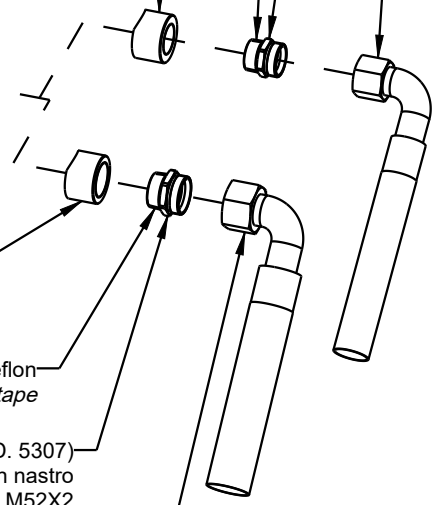


BOCCHETTONE FEMMINA 1"1/4G
FEMALE OIL PORT 1"1/4G
(COD. 0314/P-BU)

mettere nastro in teflon
put teflon tape

NIPPLESS (COD. 5306)
MASCHIO 1"1/4Gc (con nastro teflon)//MASCHIO M45X2
MALE 1"1/4Gc (with teflon tape)//MALE M45x2

TUBO FLESSIBILE 1"1/4 CON ATTACCO 90° M45x2
HOSE PIPE 1"1/4 WITH 90° M45x2 CONNECTION



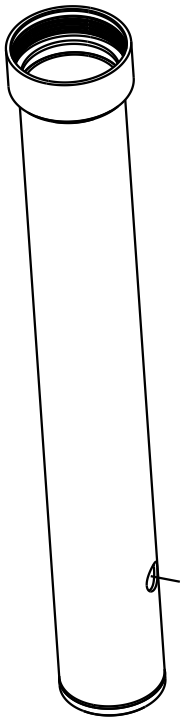
BOCCHETTONE FEMMINA 1"1/2G
FEMALE OIL PORT 1"1/2G
(COD. 0315/P-BU)

mettere nastro in teflon
put teflon tape

NIPPLESS (COD. 5307)
MASCHIO 1"1/2Gc (con nastro teflon)//MASCHIO M52X2
MALE 1"1/2Gc (with teflon tape)//MALE M52x2

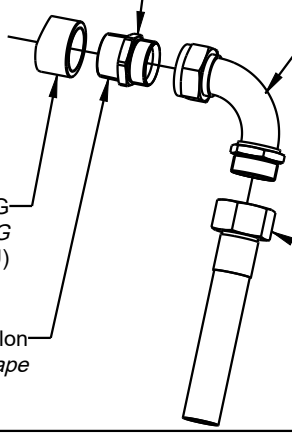
TUBO FLESSIBILE 1"1/2 CON ATTACCO 90° M52x2
HOSE PIPE 1"1/2 WITH 90° M52x2 CONNECTION

2" G



NIPPLESS (COD. 5325)
MASCHIO 2"Gc (con nastro teflon)//MASCHIO 2"G
MALE 2"Gc (with teflon tape)//MALE 2"G

GOMITO 90° MASCHIO/FEMMINA CON GIRELLO 2"G
90° ELBOW ADAPTER MALE/FEMALE WITH TURNIN NUT 2"G
(COD. 5321/8)



BOCCHETTONE FEMMINA 2"G
FEMALE OIL PORT 2"G
(COD. 0693/P-BU)

TUBO FLESSIBILE CON ATTACCO DIRITTO 2"G
HOSE PIPE WITH STRAIGHT 2"G CONNECTION

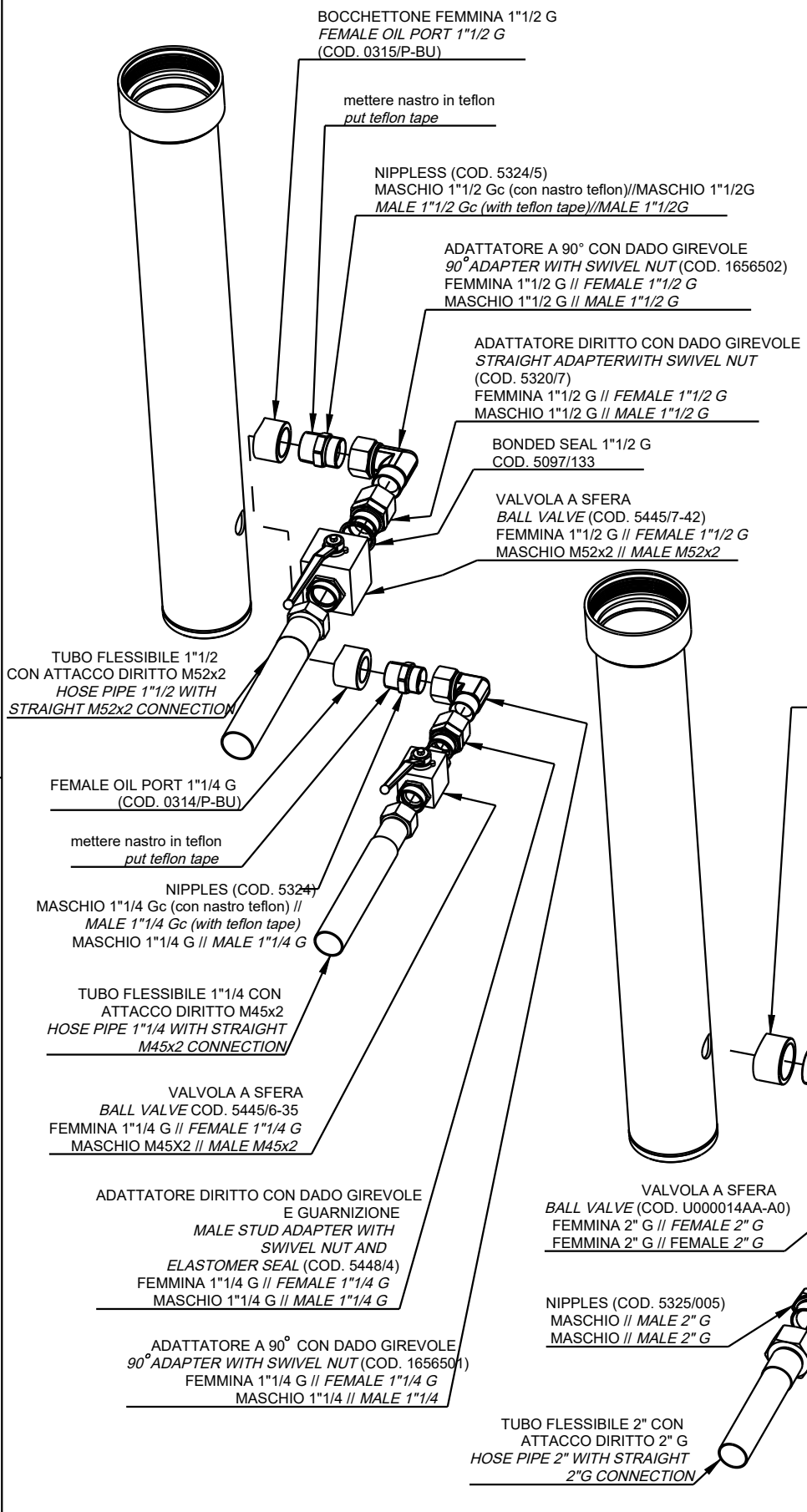
mettere nastro in teflon
put teflon tape

UT	CONN. TUBO A PISTONE SENZA VALVOLA DI ROTTURA *HOSE CONNECTIONS TO PISTON WITHOUT RUPTURE VALVE*	DATA 03/07/25 N DIS. TAV00000052-A0-1

MORIS

TAV00000052-A0-1-IT/EN

1"1/4 G 1"1/2 G



UT	CONN. TUBO A PISTONE SENZA VALVOLA DI ROTTURA CON VALVOLA A SFERA *HOSE CONNECTIONS TO PISTON WITHOUT RUPTURE VALVE WITH BALL VALVE*	DATA 16/05/24 N DIS. TAV00000052-A1

MORIS

TAV00000052-A1-IT/EN

Ⓧ **ASSEMBLY WITH TEFLON**

CHECK THE TIGHTNESS OF THE CONNECTIONS BEFORE PROCEEDING WITH THE FILLING OF THE UNITS

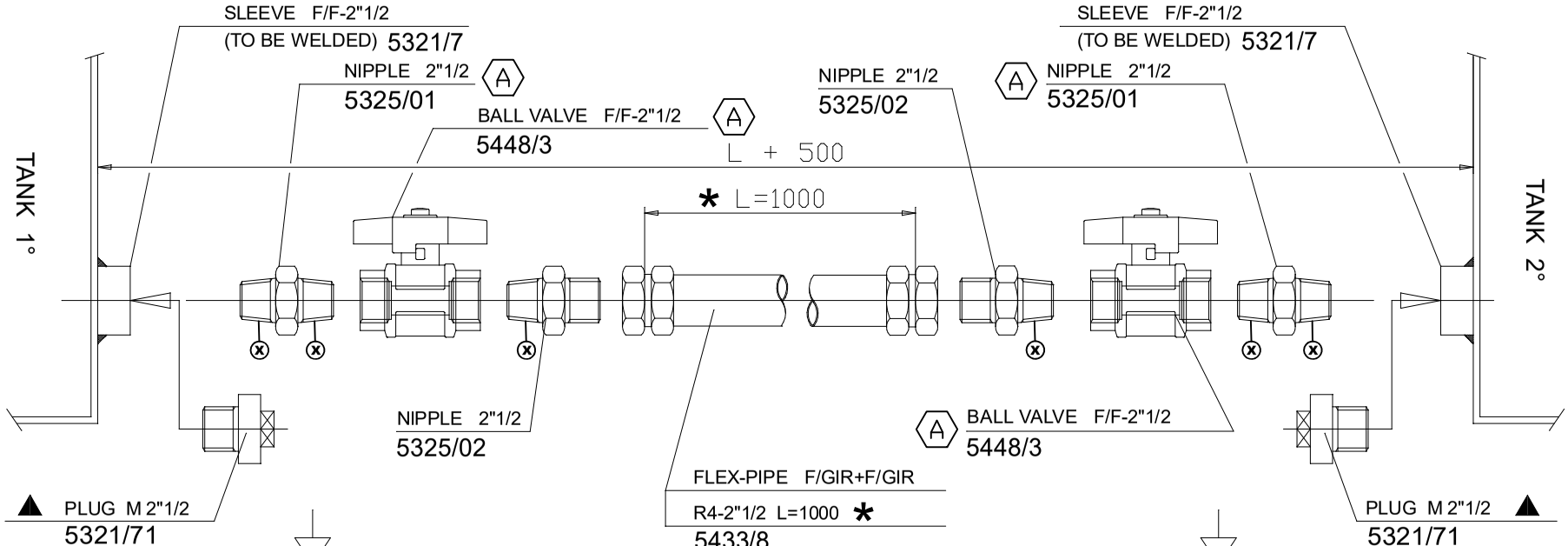
9682-IN

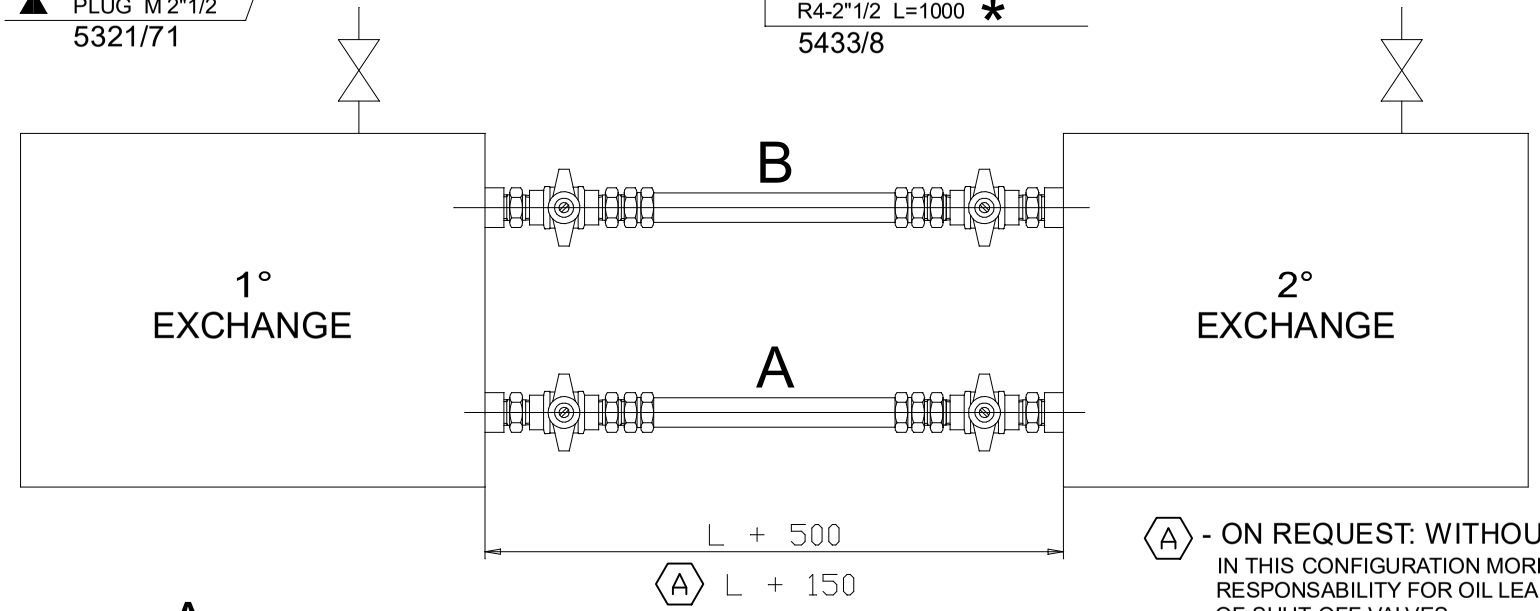
UT

COMPONENTS ASSEMBLY ON THE TANK FOR "BY-PASS" BETWEEN TWO COUPLED EXCHANGES TANK

DATA 04/23

DIS. N° 9682





A = BY-PASS 180 (55/180)

A+B = BY-PASS 650 (210/650)

Ⓐ - ON REQUEST: WITHOUT BALL-VALVE
IN THIS CONFIGURATION MORIS DOES NOT ASSUME RESPONSABILITY FOR OIL LEAKAGE DUE TO LACK OF SHUT-OFF VALVES.

* - UPON REQUEST: L=500 (MAY VARY)

▲ - FOR TRANSPORT ONLY