



Attrezzature Jet Grouting

Jet Grouting Equipment



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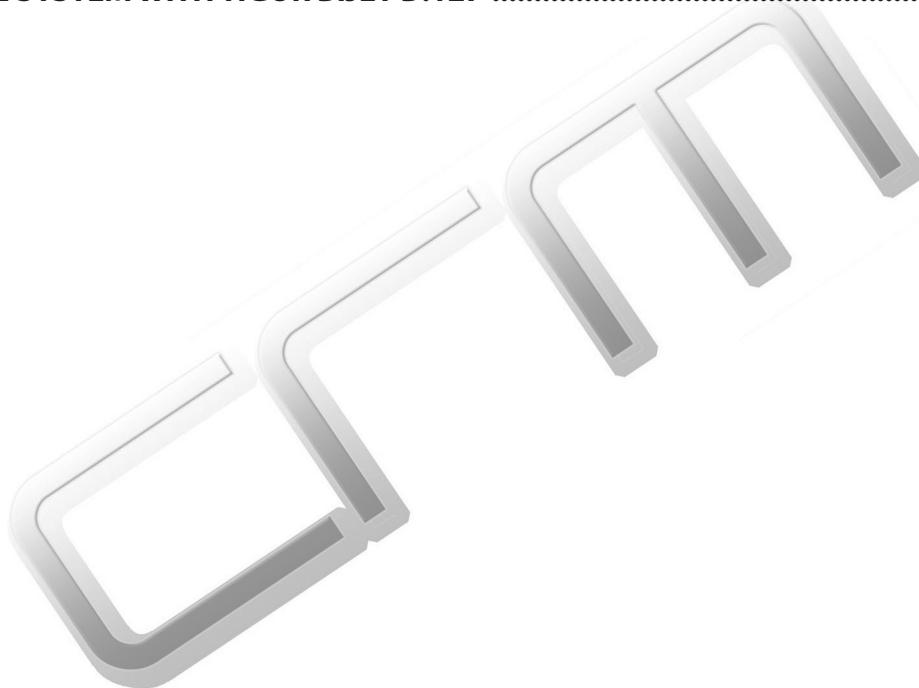


Sommario

1	REVISIONI DOCUMENTO - DOCUMENT REVISIONS.....	5
2	DESCRIZIONE TIPOLOGIE JETTING - JETTING TECHNIQUES' DESCRIPTION	6
3	JET MONOFLUIDO * SINGLE-FLUID	11
3.1	D.60 JET	13
3.2	D.76 JET	15
3.3	D.90 JET	17
3.4	D.114 JET	20
3.5	D.127 JET	22
4	C2 BIFLUIDO * DOUBLE FLUID	24
4.1	D.90 C2 - Schema generale - Complete plan.....	27
4.2	D.90 C2	28
4.3	D.114 C2-Schema generale - Complete plan	31
4.4	D.114 C2	32
4.5	D.114 C2 S.T.R.A.JET-IV.....	35
4.6	D.114 C2 PLUS.....	37
4.7	D.114 C2H.....	39
4.8	D.127 C2	41
4.9	D.127 C2 S.T.R.A.JET DOUBLE NOZZLE	43
4.10	D.140 C2.....	45
5	C3 TRIFLUIDO * TRIPLE FLUID	47
5.1	D.90 K3.....	49
5.2	D.114 C3	51
5.3	D.127 C3	54
6	JETTING ESAGONALE * HEXAGONAL JETTING	57
6.1	JET HEX 80	58
6.2	C2 HEX 80	60
7	JET GROUTING CON MARTELLO FONDO FORO * JET GROUTING WITH DTH.....	62
7.1	D.90 JET 1 DTH AIR HAMMER.....	63
7.2	D.90 JET 2 DTH AIR HAMMER.....	65
7.3	D.114 JET 1 DTH AIR HAMMER.....	68
7.4	D.114 JET 2 DTH AIR HAMMER.....	70
7.5	D.114 JET 1 DTH WATER HAMMER.....	73
7.6	D.114 HP T3 JET 2 DTH AIR HAMMER (GROUT-AIR-AIR).....	75
7.7	D.114 HP T3 JET 3 DTH WATER HAMMER	77
7.8	D.114 HP T3 JET 2 DTH WATER HAMMER	79



7.9	D.127 C3 JET 2 DTH WATER HAMMER	81
7.10	D.127 C3 JET 3 DTH WATER HAMMER	83
8	JET-GROUTING PER POSIZIONATORI * JET GROUTING FOR TUNNELLING.....	85
8.1	D.90 JET RP FOR TUNNELLING.....	86
8.2	D.114 JET RP FOR TUNNELLING	88
9	JET ROTOPERCUSSIONE * ROTOPERCUSSION JETTING	90
9.1	D.90 JET RP	91
9.2	D.114 JET RP	93
9.3	D.114 C2 RP.....	95
10	JET GROUTING WITH DEVIATION MEASUREMENT	97
10.1	D.114 C2 SYSTEM WITH TIGOR BIJET D.127	98
10.2	D.127 C2 SYSTEM WITH TIGOR BIJET D.127	99





1 REVISIONI DOCUMENTO - DOCUMENT REVISIONS

Rev. No.	Date	Description
-		
1	09-03-2009	Revisione generale documento. Aggiunte figure.
2	29-04-2009	Aggiunti i seguenti codici: J-JOVNR000 E J-JOVNR112.
3	14-07-2009	Aggiunti i seguenti codici: 60J15040, CP00283014-1, CP00283314-70
4	05-03-2010	Revisione veste grafica. Aggiunti D.127 C2, D.140 C2 e jetting esagonale.
5	04-01-2013	Aggiunti D.114 JET RP e D.114 C2 RP. Variato C2 DTH con martello 5". Cambiati codici swivel sottotesta e aggiunte attrezzature per posizionario.
6	04-10-2013	Variato capitolo 22 D.114 HP T3 DTH JET. Aggiunti §22.1 e 22.2
7	04-11-2015	Aggiunti capitoli 22.3 e 22.4
8	23-02-2016	Revisione generale. Aggiunti D.114 C3 e D.127 C3. Aggiornata numerazione capitoli.
9	20-09-2016	Revisione capitoli 4, 4.3, 4.5 per STRAJET step IV.
10	14-12-2017	Revisione capitolo 7. Variati codici teste AP D2, T3, Modular C2 e Modular C3.
11	14-03-2019	Variata tabella swivels. Variate tabelle specifiche tecniche. Aggiunto Strajet doppi ugello. Variata denominazione capitoli DTH e codici articoli. Aggiunto capitolo §10.
12	02-09-2021	Variati codici Modular swivel: sostituiti con vers. J2 e J3. Aggiunti codici aste D.114 C2 con interno in acciaio.

2 DESCRIZIONE TIPOLOGIE JETTING - JETTING TECHNIQUES' DESCRIPTION

APPLICAZIONI PRINCIPALI-MAIN APPLICATIONS:

- SOTTOFONDAZIONI - UNDERPINNING
- DIAFRAMMI - DIAPHRAGM WALLS
- CONSOLIDAMENTI DI GALLERIE - TUNNEL CONSOLIDATIONS
- TAMPONI DI FONDO - BOTTOM PLUGS
- CONSOLIDAMENTO DI TERRENI IN PENDENZA - SLOPES CONSOLIDATIONS
- DAM CUT-OFFS
- DIAPHRAGM WALLS GAPS
- BREAK-IN AND BREAK-OUT FOR TBM

VANTAGGI PRINCIPALI - MAIN ADVANTAGES:

- GRANDE VARIETA' DI TERRENI TRATTABILI - WIDE RANGE OF SOILS THAT CAN BE SUCCESSFULLY TREATED
- POSSIBILITA' DI OTTENERE COLONNE DI TERRENO CONSOLIDATO DA 60 A PIU' DI 300 cm DI DIAMETRO, PARTENDO DA FORI DI PICCOLO DIAMETRO NON SUPERIORI A 140 mm - CAPABILITY TO OBTAIN COLUMNS OF CONSOLIDATED SOIL WITH DIAMETER RANGING FROM 60 TO MORE THAN 300 cm BY USING SMALL DIAMETER DRILLED HOLES, NOT LARGER THAN 140 mm
- CAPACITA' DI OLTREPASSARE FONDAZIONI PRE-ESISTENTI, TROVANTI E STRATI ROCCIOSI - CAPABILITY TO OVERPASS PRE-EXISTING FOUNDATION, BOULDERS, ROCKY LAYERS
- USO DI MACCHINE PERFORATRICI LEGGERE E DI PICCOLE DIMENSIONI IN AREE ANGUSTE - USE OF LIGHT WEIGHT AND SMALL SIZE DRILLING RIGS IN SMALL WORKING AREAS



Soil type-Tipo terreno (ref. ISO 14688-1)		Size range Dimensioni	
Very coarse soil Terreno molto grossolano	Large boulders Grossi macigni	>630 mm	
	Boulders Macigni	200-630 mm	
	Cobbles Ciottoli	63-200 mm	
Coarse soil Terreno grossolano	Gravel Ghiaia	Coarse gravel Ghiaia grossolana	20-63 mm
		Medium gravel Ghiaia media	6.3-20 mm
		Fine gravel Ghiaia fine	2.0-6.3 mm
	Sand Sabbia	Coarse sand Sabbia grossolana	0.63-2.0 mm
		Medium sand Sabbia media	0.2-0.63 mm
		Fine sand Sabbia fine	0.063-0.2 mm
Fine soil Terreno fine	Silt Limo	Coarse silt Limo grossolano	0.02-0.063 mm
		Medium silt Limo medio	0.0063-0.02 mm
		Fine silt Limo fine	0.002-0.0063 mm
	Clay Argilla	≤ 0.002 mm	

METODI JETTING - JETTING METHODS

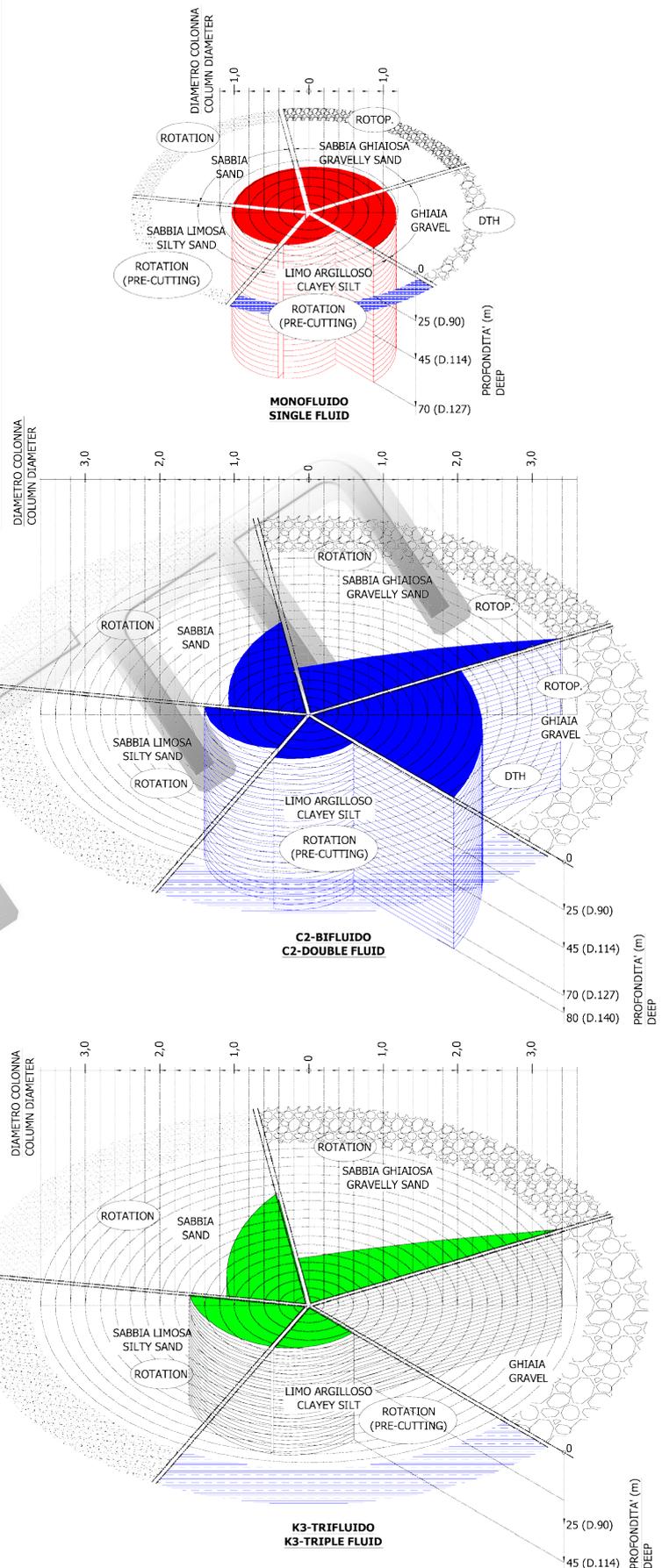
I metodi jet-grouting sono classificati in tutto il mondo in tre tipi a seconda del numero di fluidi di iniezione:

Jet grouting techniques are world-wide classified into three categories according to the number of injected fluids:

- monofluido - mono-fluid**
 il cemento e' usato come unico fluido per disaggregare il terreno ed effettuare il consolidamento.
grout is used as disaggregating and consolidating fluid.
- bifluido - double-fluid**
 cemento ed aria sono usati per disaggregare e consolidare il terreno.
grout plus air are used as disaggregating and consolidating fluids.
- trifluido - triple-fluid**
 acqua ed aria sono usati per disaggregare il terreno mentre il cemento e' usato per il consolidamento.
water plus air are used as disaggregating fluids while grout is used as consolidating fluid.

Il diagramma seguente rappresenta uno schema indicativo del tipo di tecnologia jetting più indicata in funzione del tipo di terreno e del diametro della colonna realizzabile.

The following diagram gives an indication of the suitable jetting techniques in function of soil type and of the reachable column diameter.



See table key page 8		JET GROUTING SWIVELS									
		J-J00TAL76	J-8C2TS650	J-8C2TS650V	J-8C214550	J-8C2TS700	J-8C2TS700V	J-8C212500	J-WMHPS4J3	J-WMHPSWT3	J-AMHPS4J2
Front section (mm)		86	124	124	129	150	150	159	170	170	170
Swivel length (mm)		259	378	318	282	465,5	377,5	309	650	607	498
Upper connection											
Lower connection											
Inlet size (BSPP)		3/4"	1"-1/4	1"-1/4	1"-1/4	1"-1/2	1"-1/2	1"-1/2	2"	1"-1/4	2"
1st INLET	Shape										
	ID (mm)	12	30	30	36 D.Eq.	35	35	56 D.Eq.	35	30	45
	Pressure (MPa) Max / Working	56/40	56/40	56/40	3/2,4	56/40	56/40	3/2,4	56/40	56/40	56/40
	Type of media										
2nd INLET	Shape										
	ID (mm)								37 D.Eq.	31 D.Eq.	33 D.Eq.
	Pressure Max / Working								56/45	56/45	3/2,4
	Type of media										
3rd INLET	Shape										
	ID (mm)								49 D.Eq.	36 D.Eq.	
	Pressure Max / Working								3/2,4	3/2,4	
	Type of media										
Max / Min C°		-30/+120 °C	-30/+120 °C	-30/+120 °C	-30/+110 °C	-30/+120 °C	-30/+120 °C	-30/+110 °C	-30/+110 °C	-30/+110 °C	-30/+110 °C
Max RPM dry run (2h)		50	35	35	35	30	30	30	25	30	25
Max RPM with cooling		130	110	110	110	105	105	105	150	105	150
Pull / Thrust (KN)		2	7	7	-	16	16	-	39	31	39
Type of drilling											

See table key page 8		JET GROUTING SWIVELS									
		J-WMHPS4J2	J-AMHPSWD2	J-WMHPSWD2	J-SW90238	J-8JRP5D60	J-8JRP5000	J-SW11312R	J-11JRPH90	J-SWC20C64	J-SW914550
Front section (mm)		170	160	160	158	180	198	188	248	248	129
Swivel length (mm)		498	472	472	417	534,5	397,5	338	601	749	292
Upper connection											
Lower connection											
Inlet size (BSPP)		2"	1"-1/2	1"-1/2	1"-1/4	1"-1/4	1"-1/4	1"-1/4	1"-1/2	1"-1/2	1"-1/4
1st INLET	Shape										
	ID (mm)	45	35	35	20	20	32	30	50	25	36 D.Eq.
	Pressure (MPa) Max / Working	56/40	56/40	56/40	56/40	56/40	56/40	56/40	56/40	56/40	3/2,4
	Type of media										
2nd INLET	Shape										
	ID (mm)	33 D.Eq.	22 D.Eq.	22 D.Eq.						43 D.Eq.	
	Pressure Max / Working	56/45	3/2,4	56/45						3/2,4	
	Type of media										
3rd INLET	Shape										
	ID (mm)										
	Pressure Max / Working										
	Type of media										
Max / Min C°		-30/+120 °C	-30/+110 °C	-30/+120 °C	-30/+110 °C	-30/+110 °C					
Max RPM dry run (2h)		25	30	30	30	30	30	25	30	30	35
Max RPM with cooling		150	105	105	105	60	60	100	40	40	110
Pull / Thrust (KN)		31	31	31	-	-	-	-	-	-	-
Type of drilling											

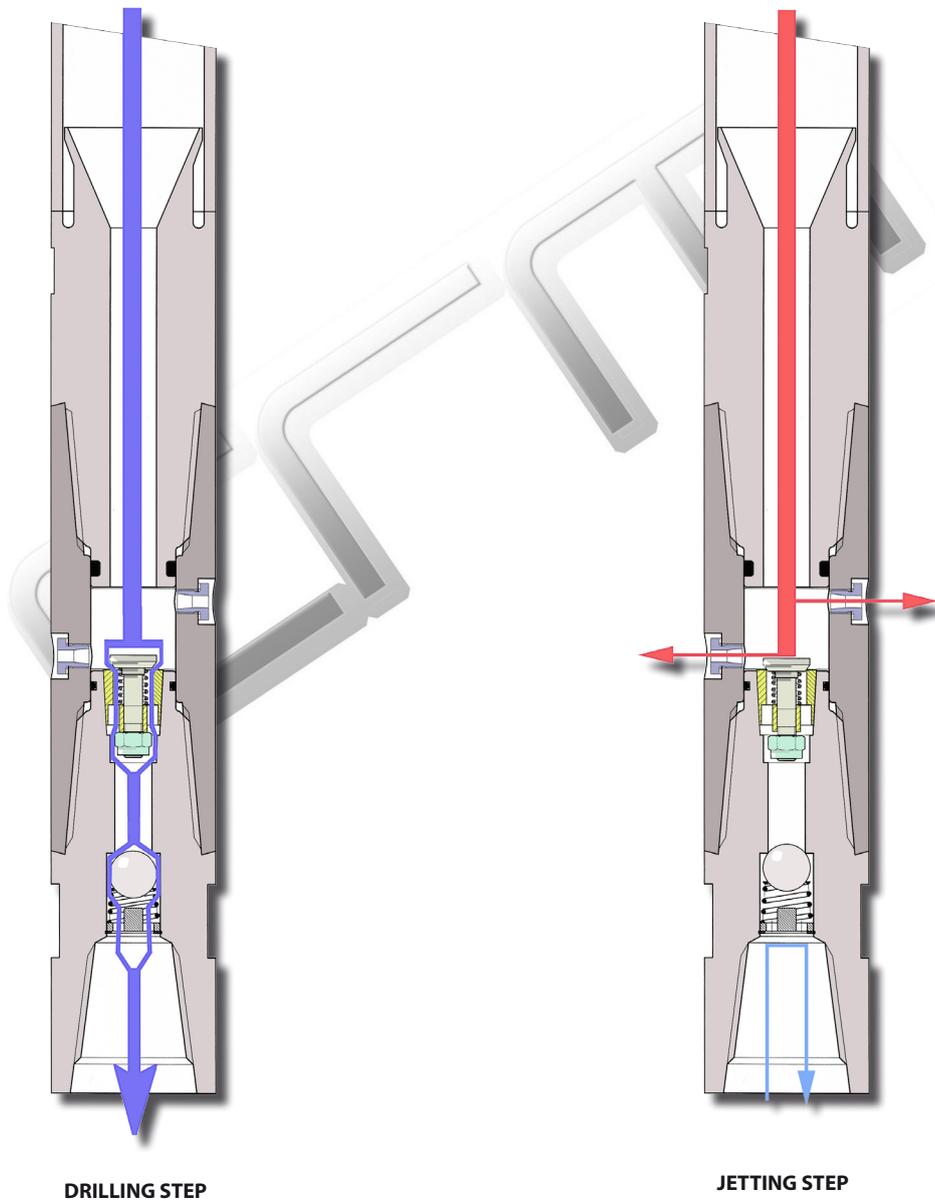
SYMBOL	MEANING
	ROUND SHAPE
	SQUARE SHAPE
	VERTICAL ANTI-SPINNING EYE
	ANTI-SPINNING SIDE EYE
	FLANGE CONNECTION
	MALE THREAD
	FEMALE THREAD
	NOT APPLICABLE
D. Eq.	$2*\sqrt{(A1-A2)/\pi}$

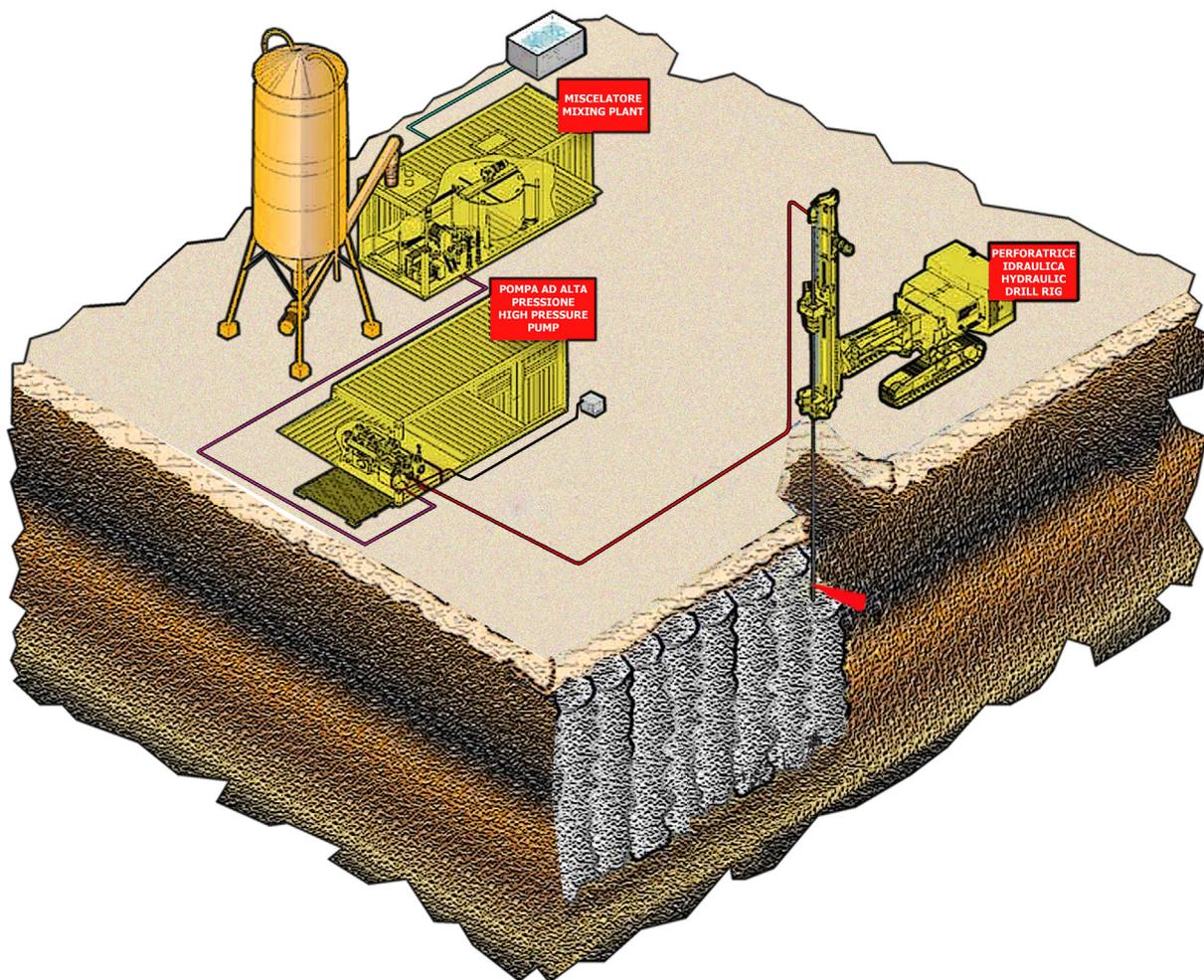
SYMBOL	MEANING
	90° BENT INLET
	VERTICAL INLET
GROUT	GROUT MIX
	WATER
	AIR
	ROTATIVE DRILLING
	DOWN THE HOLE HAMMER DRILLING
	TOP HAMMER DRILLING

3 JET MONOFLUIDO * SINGLE-FLUID

Simultanea disgregazione e consolidamento ottenuti con iniezione di cemento. Il sistema puo' essere a rotazione, rotopercussione e con martello fondo foro (dth). Il portaugelli (monitor) puo' essere dotato di uno o piu' ugelli.

A jet of cement grout breaks-up and mixes the soil. The mono-fluid system is suitable for rotation-drilling, rotopercussion-drilling and DTH-drilling. The nozzles holder (monitor) can be equipped with one or more jetting nozzles.





SCHEMA IMPIANTO JET-GROUTING MONOFLUIDO
SINGLE FLUID JET-GROUTING PLANT

3.1 D.60 JET

TECHNICAL SPECIFICATIONS					
SWIVEL TYPE	INLET	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-J00TAL76	3/4"	12	50	130	56 / 40
J-SW90238R	1"-1/4	20	30	105	56 / 40

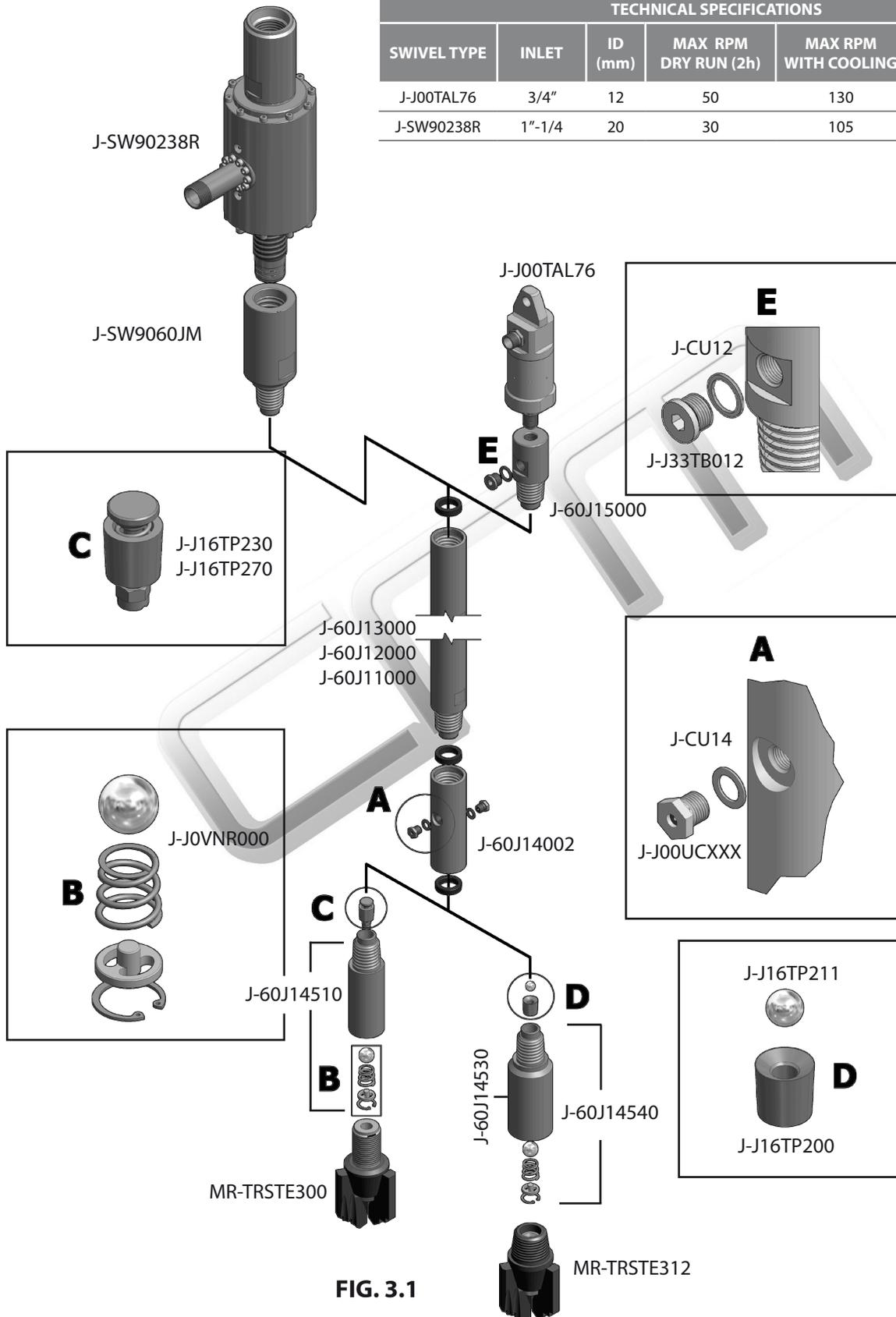


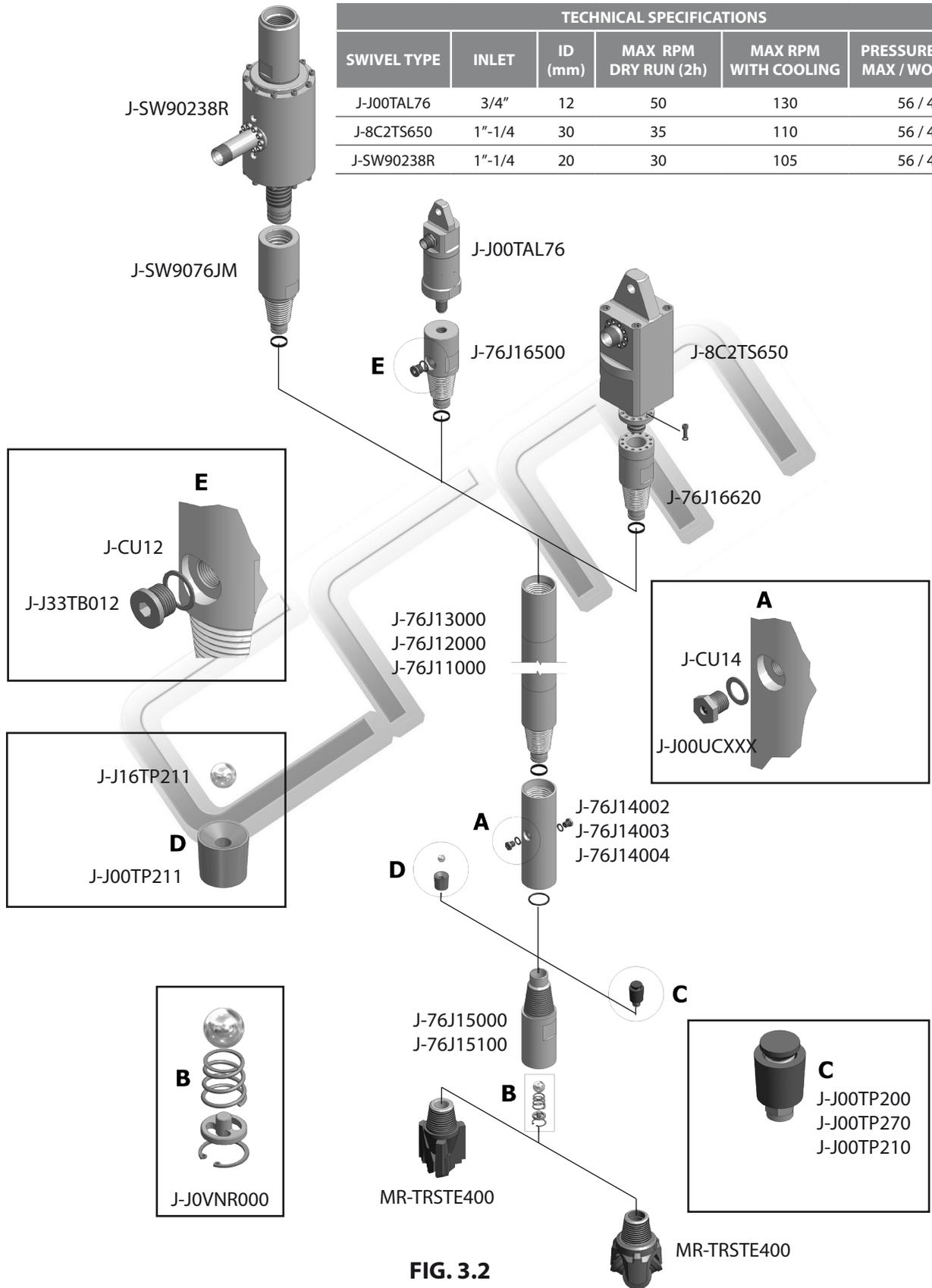
FIG. 3.1



D.60 JET - REF. FIG. 3.1

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-J00TAL76	TESTA A.P. JET 140L/MIN-500BAR	H.P. SWIVEL JET 140L/MIN-500BAR			3
J-60J15000	RID. ASTA D. 60 JET/TESTA J00TAL76	SWIVEL/ROD ADAPTER D. 60 JET			2
0000000000000000					
J-SW90238R	SWIVEL SOTTO-TESTA 2"-3/8 A.R.	UNDER ROTARY SWIVEL 2"-3/8 A.R.			41
J-SW9060JM	RIDUZ. TESTA J-SW90 F/M 60 JET	J-SW90 F/M 60 JET SWIVEL-ROD ADAPTER			6,4
0000000000000000					
J-60J13000	ASTA D. 60x3000 JET	ROD D. 60x3000 JET			31
J-60J12000	ASTA D. 60x2000 JET	ROD D. 60x2000 JET			21,5
J-60J11000	ASTA D. 60x1000 JET	ROD D. 60x1000 JET			12
J-60J14002	MONITOR D. 60 JET 2 VIE	NOZZLE HOLDER D. 60 JET 2 WAYS			2,3
J-60J14510	PORTASCA. D. 60 JET C/V NO RIT.	BIT ADAPTER D. 60 JET W/NO RET. VAL.VE			2,4
J-60J14530	PORTASCA. D. 60 JET 2" 3/8 AR	BIT ADAPTER D. 60 JET 2" 3/8 AR			3,8
J-60J14540	PORTASCA. D.60 JET 2" 3/8 AR C/V NO RIT	BIT ADAPTER D.60 JET 2" 3/8 AR W/ VALVE			3,8
J-J16TP230	VALVOLA AUT. JET TIPO 1 (30 BAR)	CHECK VALVE JET TIPO 1 (30 BAR)			0,1
J-J16TP270	VALVOLA AUT JET TIPO 1 (70 BAR)	CHECK VALVE JET TIPO 1 (70 BAR)			0,1
J-J16TP200	PORTA BIGLIA TIPO 1 Di 11	BALL HOUSING TIPO 1 I.D. 11			0,07
J-J16TP211	BIGLIA D.16	STEEL BALL D.16			0,02
J-J00UC180	UGELLO JET D. 1.8	JET NOZZLE D. 1.8			0,02
J-J00UC200	UGELLO JET D. 2.0	JET NOZZLE D. 2.0			0,02
J-J00UC220	UGELLO JET D. 2.2	JET NOZZLE D. 2.2			0,02
J-J00UC250	UGELLO JET D. 2.5	JET NOZZLE D. 2.5			0,02
J-J00UC300	UGELLO JET D. 3.0	JET NOZZLE D. 3.0			0,02
J-J00UC350	UGELLO JET D. 3.5	JET NOZZLE D. 3.5			0,02
J-J00UC400	UGELLO JET D. 4.0	JET NOZZLE D. 4.0			0,02
J-CU14	GUARN. UGELLO 1/4"	NOZZLE COPPER SEAL D. 1/4"			-
0000000000000000					
J-J01TAL76	KIT RICAMBI TESTA A.P.	SPARE PART KIT H.P. SWIVEL			-
J-J02TAL76	KIT GUARN. TESTA A.P.	SEAL KIT H.P. SWIVEL			-
J-SW90278R-S	KIT RICAMBI SWIVEL JET SOTTO TESTA J-SW90	UNDER ROTARY SWIVEL SPARE PARTS			-
J-SW90278R-K	KIT GUARN. SWIVEL SOTTO-TESTA	UNDER ROTARY SWIVEL SEAL KIT			-
J-60J13011	KIT GUARN. ASTA 60 JET	SEAL KIT ROD 60 JET			-
J-J33TB012	TAPPO M. 1/2" GAS	PLUG 1/2" GAS			-
J-JOVNR000	VALVOLA DI NON RITORNO COMPLETA	COMPLETE NO RETURN VALVE			0,09
0000000000000000					
MR-TRSTE300	TRILAMA STEP 3" (FIL. N-ROD)	3" STEP DRAG BIT (N-ROD THREAD)			-
MR-TRSTE312	TRILAMA STEP 3"-1/2 (2"-3/8 A.R.)	3"-1/2 STEP DRAG BIT (2"-3/8 A.R.)			-

3.2^{D.76 JET}



TECHNICAL SPECIFICATIONS					
SWIVEL TYPE	INLET	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-J00TAL76	3/4"	12	50	130	56 / 40
J-8C2TS650	1"-1/4	30	35	110	56 / 40
J-SW90238R	1"-1/4	20	30	105	56 / 40

FIG. 3.2



D.76 JET - REF. FIG. 3.2

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-J00TAL76	TESTA A.P. JET 140L/MIN-500BAR	H.P. SWIVEL JET 140L/MIN-500BAR			3
J-76J16500	RIDUZ. TESTA J00TAL76 ASTA JET	SWIVEL/ADAPTER J00TAL76-ROD D. 76			4
0000000000000000					
J-8C2TS650	TESTA A.P. 410L/MIN-560BAR	H.P. SWIVEL 410L/MIN-560BAR			11
J-76J16620	RIDUZ. TESTA 8C2TS650 JET	SWIVEL/ADAPTER 8C2TS650 JET			4
0000000000000000					
J-SW90238R	SWIVEL SOTTO-TESTA 2"-3/8 A.R.	UNDER ROTARY SWIVEL 2"-3/8 A.R.			41
J-SW9076JM	RIDUZ. TESTA J-SW90 F/M 76 JET	J-SW90 F/M 76 JET SWIVEL-ROD ADAPTER			6
0000000000000000					
J-76J13000	ASTA D. 76X3000 JET	ROD D. 76X3000 JET			38
J-76J12000	ASTA D. 76X2000 JET	ROD D. 76X2000 JET			27
J-76J11000	ASTA D. 76X1000 JET	ROD D. 76X1000 JET			16,2
J-76J14002	MONITOR D. 76 JET 2 VIE	NOZZLE HOLDER D. 76 JET 2 NOZ.			4,8
J-76J14003	MONITOR D. 76 JET 3 VIE	NOZZLE HOLDER D. 76 JET 3 NOZ.			4
J-76J14004	MONITOR D. 76 JET 4 VIE	NOZZLE HOLDER D. 76 JET 4 NOZ.			5
J-76J15000	PORTASCALPELLO D. 76 JET	BIT ADAPTER D. 76 JET			4,2
J-76J15100	PORTASCALPELLO D. 76 JET C/V NO RIT.	BIT ADAPTER D. 76 JET W/NO RET. VAL.			4,3
J-J00TP200	VALVOLA AUT. JET 30BAR	JET CHECK VALVE 30BAR			0,2
J-J00TP270	VALVOLA AUT. JET 70BAR	JET CHECK VALVE 70BAR			0,2
J-J00TP210	VALVOLA AUT. JET 100BAR	JET CHECKVALVE 100BAR			0,2
J-J00TP211	PORTA BIGLIA d. 11	BALL HOUSING D. 11			0,15
J-J16TP211	BIGLIA D. 16	STEEL BALL D. 16			0,02
J-J00UC180	UGELLO JET D. 1.8	JET NOZZLE D. 1.8			0,02
J-J00UC200	UGELLO JET D. 2.0	JET NOZZLE D. 2.0			0,02
J-J00UC220	UGELLO JET D. 2.2	JET NOZZLE D. 2.2			0,02
J-J00UC250	UGELLO JET D. 2.5	JET NOZZLE D. 2.5			0,02
J-J00UC300	UGELLO JET D. 3.0	JET NOZZLE D. 3.0			0,02
J-J00UC350	UGELLO JET D. 3.5	JET NOZZLE D. 3.5			0,02
J-J00UC400	UGELLO JET D. 4.0	JET NOZZLE D. 4.0			0,02
J-CU14	GUARN. UGELLO 1/4"	NOZZLE COPPER SEAL D. 1/4"			-
0000000000000000					
J-J01TAL76	KIT RICAMBI TESTA A.P.	H.P. SWIVEL SPARE PART KIT			-
J-J02TAL76	KIT GUARN. TESTA A.P.	H.P. SWIVEL SEAL KIT			-
J-8C2TS651	KIT RICAMBI TESTA A.P.	H.P. SWIVEL SPARE PART KIT			-
J-8C2TS652	KIT GUARN. TESTA A.P.	H.P. SWIVEL SEAL KIT			-
J-8C2TS652-A	GUARN. CENTRALI TESTA 8C2TS650	MAIN GROUT SEAL H.P. SWIVEL			-
J-8C2TS652-H	GUARN. CENTRALI ALTA VELOCITA'	MAIN GROUT SEAL H.P. SWIVEL HIGH SPEED			-
J-SW90278R-S	KIT RICAMBI SWIVEL JET SOTTO TESTA J-SW90	UNDER ROTARY J-SW90 SW. SPARE PARTS			-
J-SW90278R-K	KIT GUARN. SWIVEL SOTTO-TESTA J-SW90	UNDER ROTARY J-SW90 SWIVEL SEAL KIT			-
J-76J13011	KIT GUARN. ASTA 76 JET	SEAL KIT ROD D. 76 JET			-
J-J33TB012	TAPPO M. 1/2" GAS	GROUT NOZZLE PLUG C2			-
J-JOVNR000	VALVOLA DI NON RITORNO COMPLETA	COMPLETE NO RETURN VALVE			0,09
MR-TRSTE400	TRILAMA STEP 4"	4" STEP DRAG BIT			-
MR-TRICO400	TRICONO D.4" (2"-3/8 A.R.)	ROCK BIT D.4" (2"-3/8 A.R.)			-

3.3 D.90 JET

TECHNICAL SPECIFICATIONS					
SWIVEL TYPE	INLET	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-J00TAL76	3/4"	12	50	130	56 / 40
J-8C2TS650	1"-1/4	30	35	110	56 / 40
J-SW90278R	1"-1/4	20	30	105	56 / 40

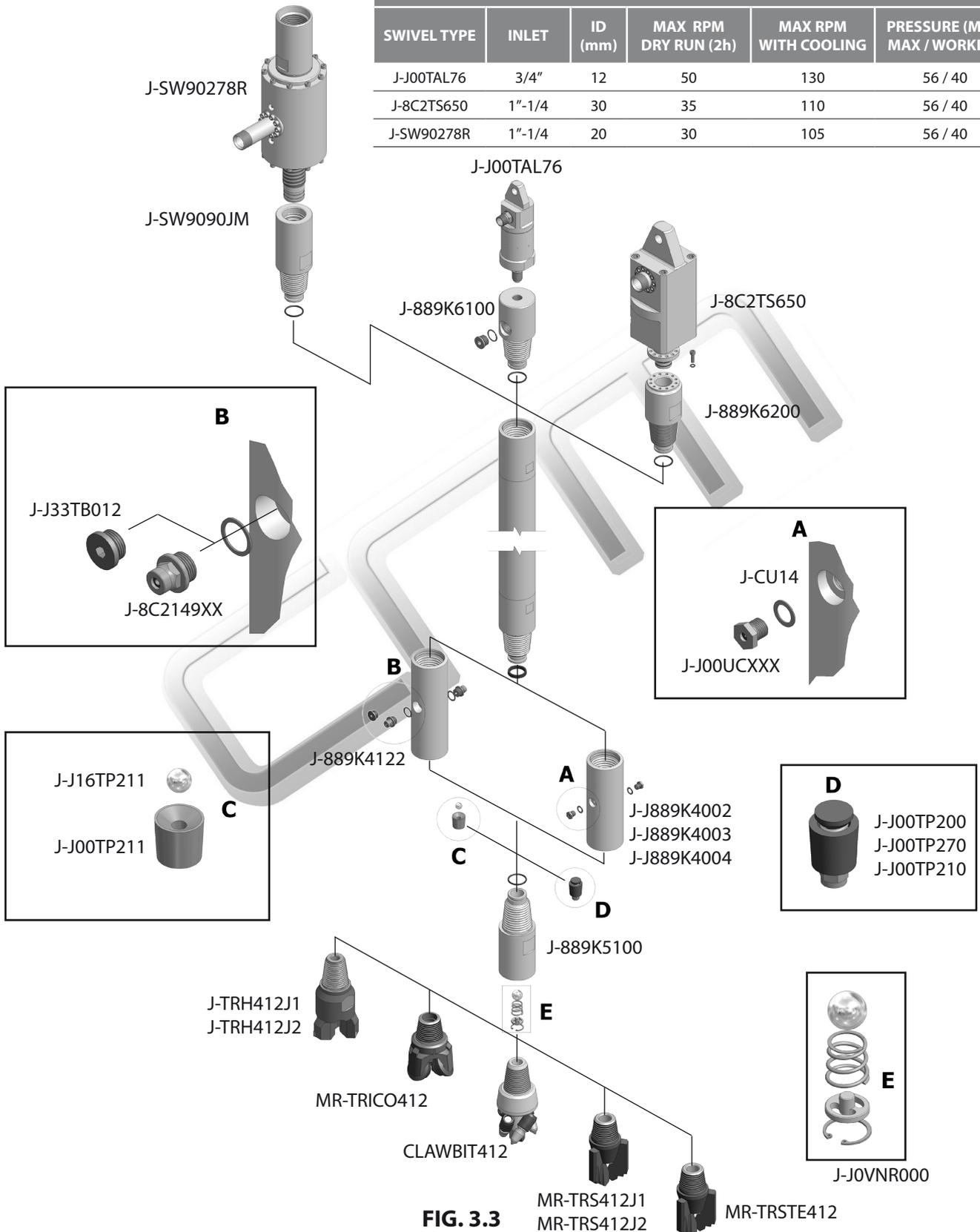


FIG. 3.3



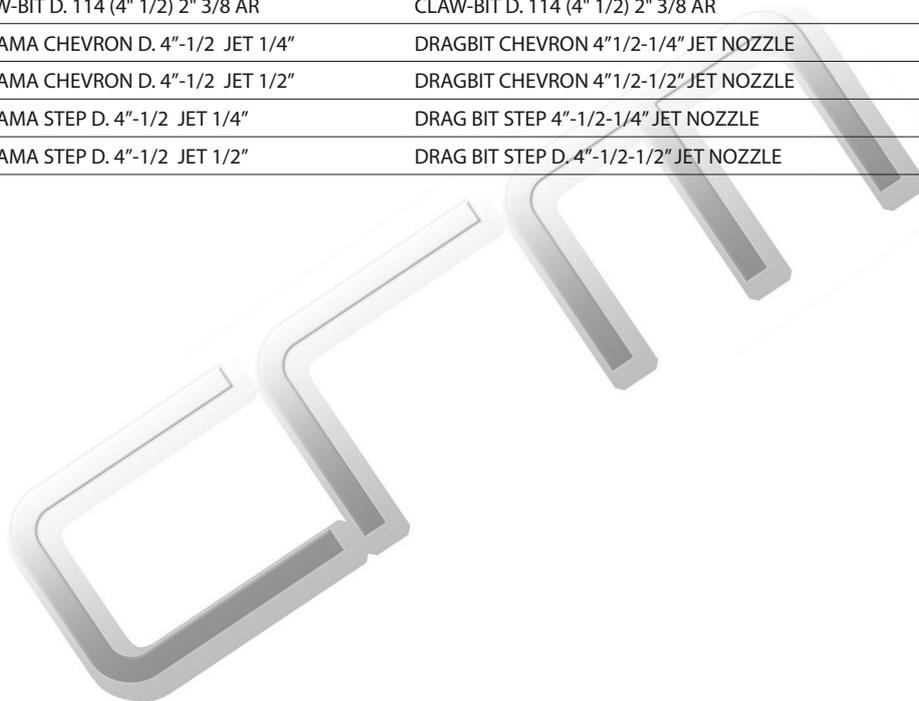
D.90 JET - REF. FIG. 3.3

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-J00TAL76	TESTA A.P. JET 140L/MIN-500BAR	H.P. SWIVEL JET 140 L/MIN-500BAR			3
J-889K6100	RIDUZ. TESTA J00TAL76	SWIVEL ADAPTER J00TAL76			6
00000000000000					
J-8C2TS650	TESTA A.P. 410L/MIN-560BAR	H.P. SWIVEL 410L/MIN-560BAR			11
J-889K6200	RIDUZ. TESTA 8C2TS650	SWIVEL ADAPTER 8C2TS650			5,8
00000000000000					
J-SW90278R	SWIVEL SOTTO-TESTA 2"-7/8 A.R.	UNDER ROTARY SWIVEL 2"-7/8 A.R.			41
J-SW9090JM	RIDUZ. TESTA J-SW90 F/M 90 JET	J-SW90 F/M 90 JET SWIVEL-ROD ADAPTER			6,9
00000000000000					
J-889K3000	ASTA D. 88.9X3000 JET	D. 90X3000 JET			47
J-889K2000	ASTA D. 88.9X2000 JET	D. 90X2000 JET			34
J-889K1000	ASTA D. 88.9X1000 JET	D. 90X1000 JET			21
J-889K4002	MONITOR D. 90 JET 2 VIE	NOZZLE HOLDER D. 90 JET 2 NOZ.			6,6
J-889K4003	MONITOR D. 88.9 JET 3 VIE	NOZZLE HOLDER D. 90 JET 3 NOZ.			7,4
J-889K4004	MONITOR D. 88.9 JET 4 VIE	NOZZLE HOLDER D. 90 JET 4 NOZ.			8,2
J-889K5100	PORTASCA. D. 90 JET C/V NO RIT.	BIT ADAPTER W/NO RET. VAL.			6,5
J-J00TP200	VALVOLA AUT. JET 30BAR	JET CHECK VALVE 30BAR			0,2
J-J00TP270	VALVOLA AUT. JET 70BAR	JET CHECK VALVE 70BAR			0,2
J-J00TP210	VALVOLA AUT. JET 100BAR	JET CHECK VALVE 100BAR			0,2
J-J16TP211	BIGLIA D.16	BALL D. 16			0,02
J-J00TP211	PORTA BIGLIA D. 11	BALL HOUSING D. 11			0,15
J-J00UC180	UGELLO JET D. 1.8	JET NOZZLE D. 1.8			0,02
J-J00UC200	UGELLO JET D. 2.0	JET NOZZLE D. 2.0			0,02
J-J00UC220	UGELLO JET D. 2.2	JET NOZZLE D. 2.2			0,02
J-J00UC250	UGELLO JET D. 2.5	JET NOZZLE D. 2.5			0,02
J-J00UC300	UGELLO JET D. 3.0	JET NOZZLE D. 3.0			0,02
J-J00UC350	UGELLO JET D. 3.5	JET NOZZLE D. 3.5			0,02
J-J00UC400	UGELLO JET D. 4.0	JET NOZZLE D. 4.0			0,02
J-CU14	GUARN. UGELLO 1/4"	NOZZLE COPPER SEAL D. 1/4"			-
J-J31TP014	TAPPO M. 1/4" ESAGONO	MALE PLUG 1/4"			-
00000000000000					
J-J01TAL76	KIT RICAMBI TESTA A.P.	H.P. SWIVEL SPARE PART KIT			-
J-J02TAL76	KIT GUARN. TESTA A.P.	H.P. SWIVEL SEAL KIT			-
J-8C2TS651	KIT RICAMBI TESTA A.P.	H.P. SWIVEL SPARE PART KIT			-
J-8C2TS652	KIT GUARN. TESTA A.P.	H.P. SWIVEL SEAL KIT			-
J-8C2TS652-A	GUARN. CENTRALI TESTA 8C2TS650	8C2TS650 SWIVEL MIDDLE SEALS			-
J-8C2TS652-H	GUARN. CENTRALI ALTA VELOCITA'	HIGH SPEED MIDDLE SEALS			-
J-SW90278R-S	KIT RICAMBI SWIVEL JET SOTTO TESTA J-SW90	UNDER ROTARY J-SW90 SW. SPARE PARTS			-
J-SW90278R-K	KIT GUARN. SWIVEL SOTTO TESTA JET 90	UNDER ROTARY J-SW90 SWIVEL SEALS KIT			-
J-889K3011	KIT GUARN. ASTA D. 90 JET	SEAL KIT ROD D. 889 B1811			-
J-JOVNR000	VALVOLA DI NON RITORNO COMPLETA	COMPLETE NO RETURN VALVE			0,09



D.90 JET - REF. FIG. 3.3

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
.....MONITOR UGELLO BIG SIZE.....					
J-889K4122	MONITOR D. 90 C2 Fil. 1/2"	NOZZLE HOLDER D. 90 C2 NOZZLE Th. 1/2"			8
J-8C214945	UGELLO CEM. D. 4.5 C2	GROUT NOZZLE D. 4.5			0,1
J-8C214950	UGELLO CEM. D. 5.0 C2	GROUT NOZZLE D. 5.0			0,1
J-8C214955	UGELLO CEM. D. 5.5 C2	GROUT NOZZLE D. 5.5			0,1
J-8C214960	UGELLO CEM. D. 6.0 C2	GROUT NOZZLE D. 6.0			0,1
J-CU12	GUARN. UGELLO CEMENTO 1/2"	COPPER SEAL D. 1/2"			-
J-J33TB012	TAPPO M. 1/2" GAS EX INC	GROUT NOZZLE PLUG C2			0,1
◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇					
MR-TRIC0412	TRICONO D. 4" 1/2 L2	ROCK BIT D. 4"-1/2 LH2 IADC 211			8
MR-TRSTE412	TRILAMA STEP D. 4" 1/2	DRAG BIT STEP D. 4" 1/2			4
CLAWBIT412	CLAW-BIT D. 114 (4" 1/2) 2" 3/8 AR	CLAW-BIT D. 114 (4" 1/2) 2" 3/8 AR			7
J-TRH412J1	TRILAMA CHEVRON D. 4"-1/2 JET 1/4"	DRAGBIT CHEVRON 4"1/2-1/4" JET NOZZLE			-
J-TRH412J2	TRILAMA CHEVRON D. 4"-1/2 JET 1/2"	DRAGBIT CHEVRON 4"1/2-1/2" JET NOZZLE			-
J-TRS412J1	TRILAMA STEP D. 4"-1/2 JET 1/4"	DRAG BIT STEP 4"-1/2-1/4" JET NOZZLE			-
J-TRS412J2	TRILAMA STEP D. 4"-1/2 JET 1/2"	DRAG BIT STEP D. 4"-1/2-1/2" JET NOZZLE			-



3.4 D.114 JET

TECHNICAL SPECIFICATIONS					
SWIVEL TYPE	INLET	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-8C2TS650	1"-1/4	30	35	110	56 / 40
J-8C2TS700	1"-1/2	35	30	105	56 / 40
J-SW11312R	1"-1/4	30	25	100	56 / 40

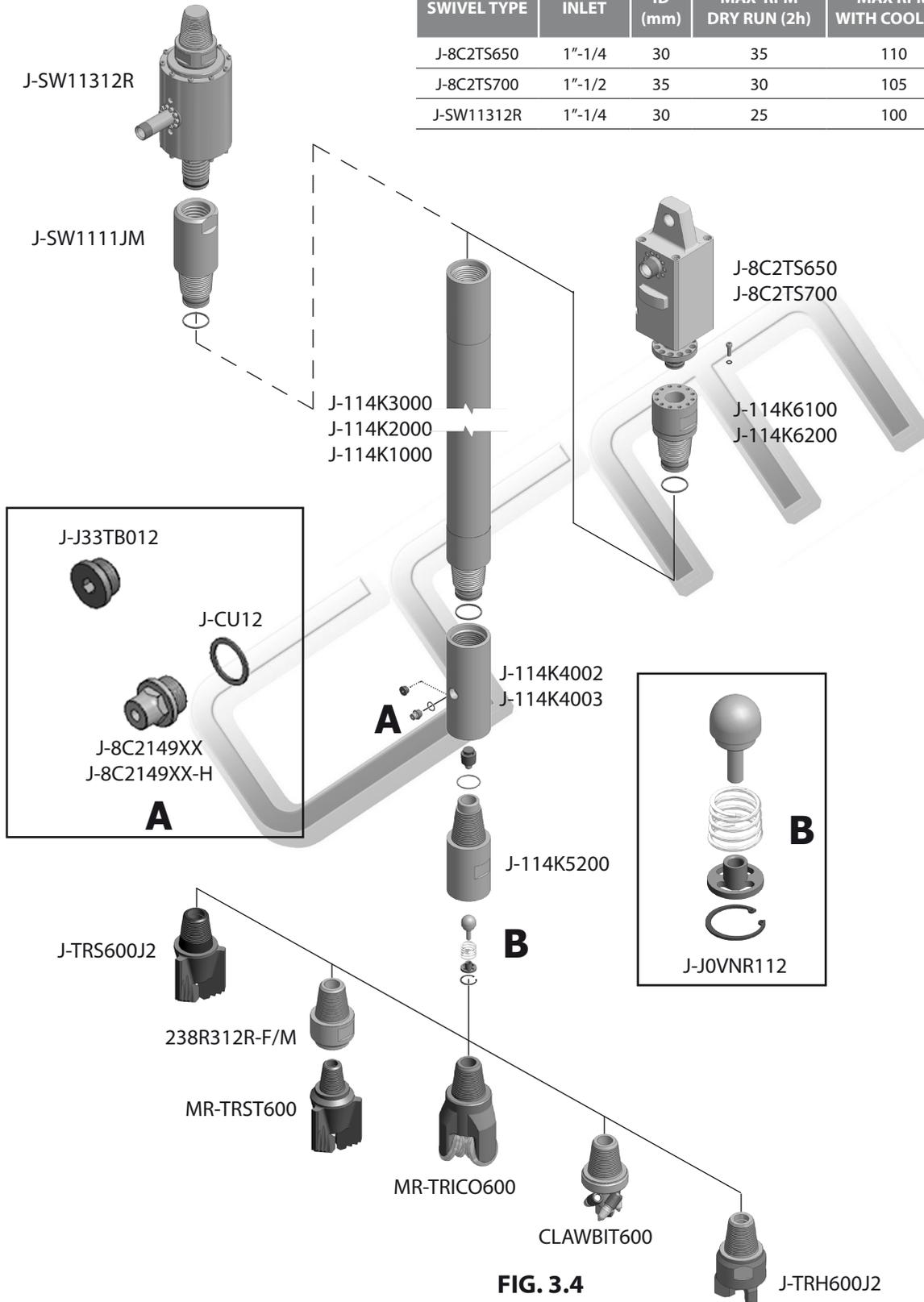


FIG. 3.4



D.114 JET - REF. FIG. 3.4

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-8C2TS650	TESTA A.P. 410L/MIN-560BAR	H.P. SWIVEL 410L/MIN-560BAR			11
J-114K6100	RIDUZ. TESTA 8C2TS650	SWIVEL ADAPTER 8C2TS650			10,7
J-8C2TS700	TESTA A.P. 700L/MIN- 560BAR	H.P. SWIVEL 700L/MIN-560BAR			20
J-114K6200	RIDUZ. TESTA 8C2TS700	SWIVEL ADAPTER 8C2TS700			10,6
00000000000000					
J-SW11312R	SWIVEL SOTTOTESTA 3"-1/2 AR M/JETT 114	UNDER ROTARY SW. 3"-1/2 AR M/JETT 114			60
J-SW1111JM	ADATTATORE SWIVEL SOTTOTESTA-ASTE 114 JET	UNDER ROTARY SW.-ROD 114 JET ADAPTER			7
00000000000000					
J-114K3000	ASTA D. 114X3000 JET	D. 114X3000 JET			67
J-114K2000	ASTA D. 114X2000 JET	D. 114X2000 JET			50
J-114K1000	ASTA D. 114X1000 JET	D. 114X1000 JET			33
J-114K4002	MONITOR D. 114 2 VIE	NOZZLE HOLDER D. 114 JET 2 NOZZLES			14,2
J-114K4003	MONITOR D. 114 3 VIE	NOZZLE HOLDER D. 114 JET 3 NOZZLES			12
J-114K5200	PORTASCA. D. 114 JET C/V NO RIT.	BIT ADAPTER D. 114 JET C/V NO RET.			10
J-J01TP212	VALVOLA AUT. JET 120BAR	AUT. JET VALVE 120BAR			0,2
J-J01TP270	VALVOLA AUT. JET 70BAR	AUT. JET VALVE 70BAR			0,2
J-8C214920	UGELLO CEM. D. 2.0 C2	GROUT NOZZLE D. 2.0 C2			0,1
J-8C214925	UGELLO CEM. D. 2.5 C2	GROUT NOZZLE D. 2.5 C2			0,1
J-8C214930	UGELLO CEM. D. 3.0 C2	GROUT NOZZLE D. 3.0 C2			0,1
J-8C214935	UGELLO CEM. D. 3.5 C2	GROUT NOZZLE D. 3.5 C2			0,1
J-8C214940	UGELLO CEM. D. 4.0 C2	GROUT NOZZLE D. 4.0 C2			0,1
J-8C214945	UGELLO CEM. D. 4.5 C2	GROUT NOZZLE D. 4.5 C2			0,1
J-8C214950	UGELLO CEM. D. 5.0 C2	GROUT NOZZLE D. 5.0 C2			0,1
J-8C214955	UGELLO CEM. D. 5.5 C2	GROUT NOZZLE D. 5.5 C2			0,1
J-8C214960-H	UGELLO CEM. D. 6.0 C2 HEAVY DUTY	GROUT NOZZLE D. 6.0 C2 HEAVY DUTY			0,12
J-8C214963-H	UGELLO CEM. D. 6.3 C2 HEAVY DUTY	GROUT NOZZLE D. 6.3 C2 HEAVY DUTY			0,12
J-8C214965-H	UGELLO CEM. D. 6.5 C2 HEAVY DUTY	GROUT NOZZLE D. 6.5 C2 HEAVY DUTY			0,12
J-8C214967-H	UGELLO CEM. D. 6.7 C2 HEAVY DUTY	GROUT NOZZLE D. 6.7 C2 HEAVY DUTY			0,12
J-8C214970-H	UGELLO CEM. D. 7.0 C2 HEAVY DUTY	GROUT NOZZLE D. 7.0 C2 HEAVY DUTY			0,12
J-8C214980-H	UGELLO CEM. D. 8.0 C2 HEAVY DUTY	GROUT NOZZLE D. 8.0 C2 HEAVY DUTY			0,12
J-CU12	GUARN. RAME 1/2"	COPPER SEAL 1/2"			-
J-J33TB012	TAPPO M. 1/2" GAS EX INC	GROUT NOZZLE PLUG 1/2"			0,1
J-114K3011	KIT GUARN. ASTA D. 114 JET	SEAL KIT ROD 114 JET			-
J-8C2TS701	KIT RICAMBI TESTA A.P.	SWIVEL SPARE KIT			-
J-8C2TS702	KIT GUARN. TESTA A.P.	SWIVEL SEAL KIT			-
J-8C2TS702-A	KIT GUARN. CENTRALI TESTA A.P.	H.P SWIVEL MIDDLE SEALS KIT			-
J-8C2TS702-H	KIT GUARN. ALTA VELOCITA'	HIGH SPEED SEALS KIT			-
J-SW11312R-S	KIT RICAMBI SWIVEL JET SOTTO TESTA J-SW11	UNDER ROTARY J-SW11 SW. SPARE PARTS			
J-SW11312R-K	KIT GUARN. SWIVEL SOTTO TESTA J-SW11	UNDER ROTARY J-SW11 SWIVEL SEALS KIT			
J-JOVNR112	VALVOLA DI NON RITORNO COMPLETA D.114	COMPLETE NO RETURN VALVE D. 114			0,05
MR-TRIC0600	TRICONO D. 6" L2	ROCK BIT D. 6" L2			9
CLAWBIT600	CLAW-BIT D. 152 (6") 3" 1/2 AR M.	CLAW-BIT D. 152 (6") 3" 1/2 AR M.			12
238R312R-F/M	RID. 2" 3/8 AR 3" 1/2 AR F/M	ADAPTER 2" 3/8 AR BOX/PIN 3" 1/2			6
MR-TRSTE600	TRILAMA STEP D. 6"	DRAG BIT D. 6" 2"3/8 AR PIN			5
J-TRH600J2	TRILAMA CHEVRON 6" (152) JET 1/2"	CHEVRON DRAG-BIT 6" (152) JET 1/2"			11
J-TRS600J2	TRILAMA STEP 6" (152) JET 1/2"	STEP DRAG-BIT 6" (152) JET 1/2"			7

3.5 D.127 JET

TECHNICAL SPECIFICATIONS					
SWIVEL TYPE	INLET	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-8C2TS700	1"-1/2	35	30	105	56 / 40
J-SW11312R	1"-1/4	30	25	100	56 / 40

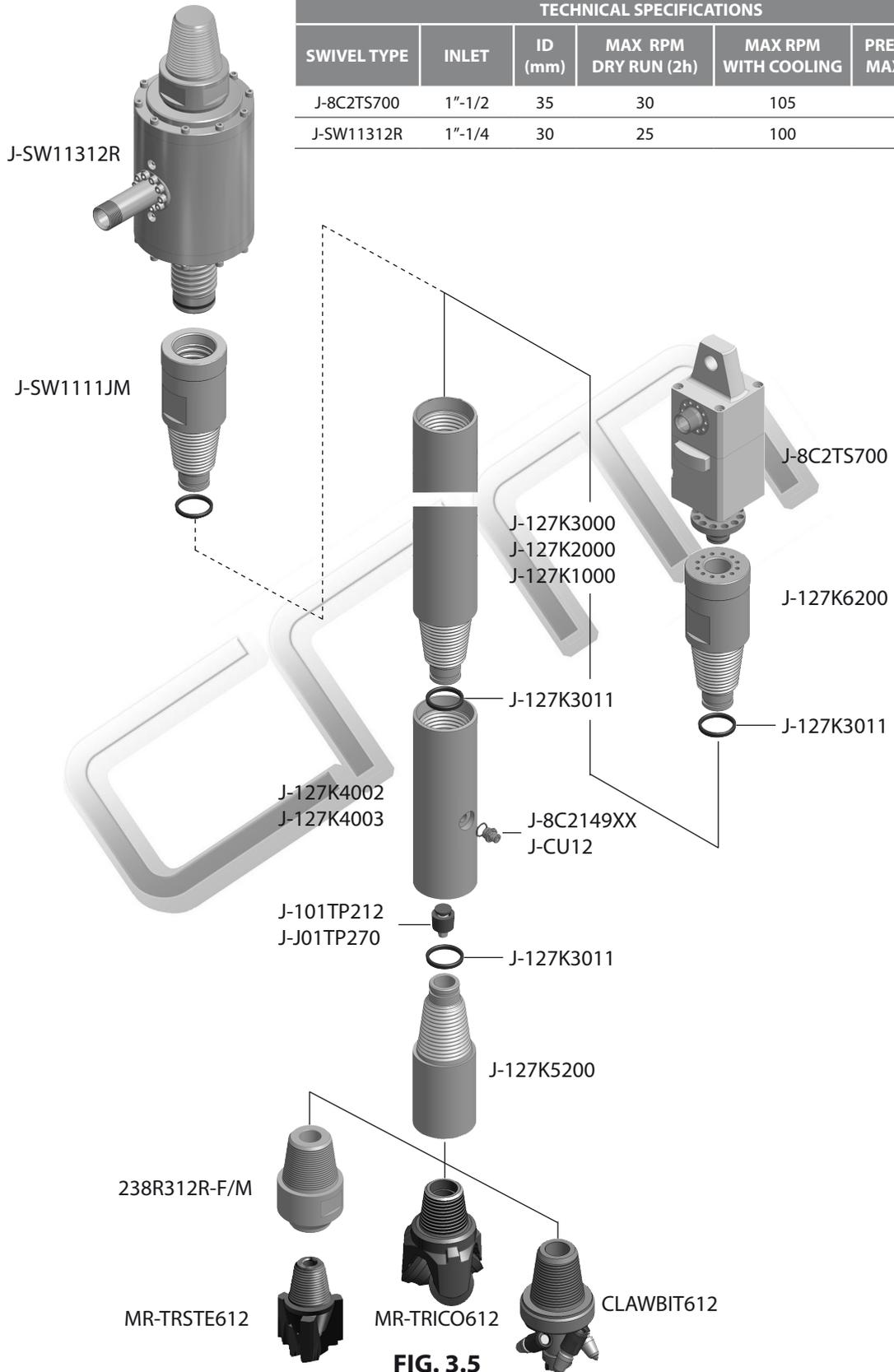
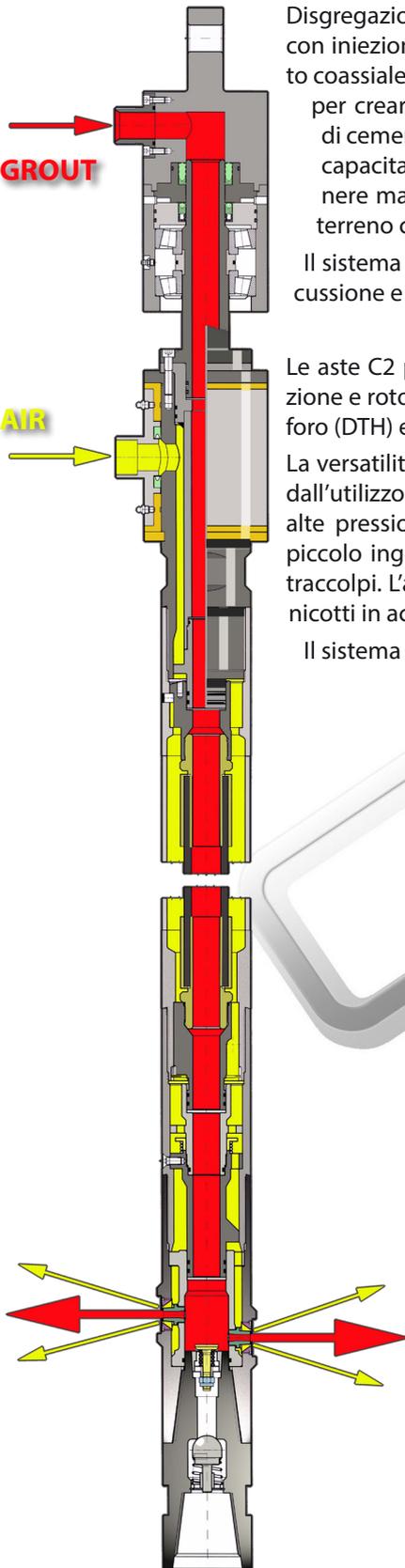


FIG. 3.5



4 C2 BIFLUIDO * DOUBLE FLUID



Disgregazione e consolidamento ottenuti con iniezione simultanea di cemento e getto coassiale di aria. Gli ugelli sono progettati per creare uno schermo intorno al getto di cemento che acquisisce una maggiore capacità di taglio ed è in grado di ottenere maggiori diametri della colonna di terreno consolidato.

Il sistema può essere a rotazione, rotopercolazione e con martello fondo foro.

Le aste C2 possono essere utilizzate a rotazione e rotopercolazione con martello fondo foro (DTH) e per il jetting monofluido.

La versatilità di questo progetto è garantita dall'utilizzo di una tubazione in gomma per alte pressioni che garantisce, alte portate, piccolo ingombro e assorbimento dei contraccolpi. L'asta esterna è frizionata con manicotti in acciaio ad alta resistenza.

Il sistema completo, è certificato CE.

A jet of cement grout and air breaks-up and mixes the soil.

The nozzles are designed so that the air-jet forms a shield all around the grout jet. This has the result of enhancing the grout jet cutting power and getting larger columns of consolidated soil.

The C2 jetting rods are suitable for rotation-drilling, rotopercolation-drilling, DTH-drilling and for one-way jetting.

Their inner high pressure rubber hose ensures high capacities, safe room and has a shock absorber function.

The external rod has friction welded high strength tool joints.

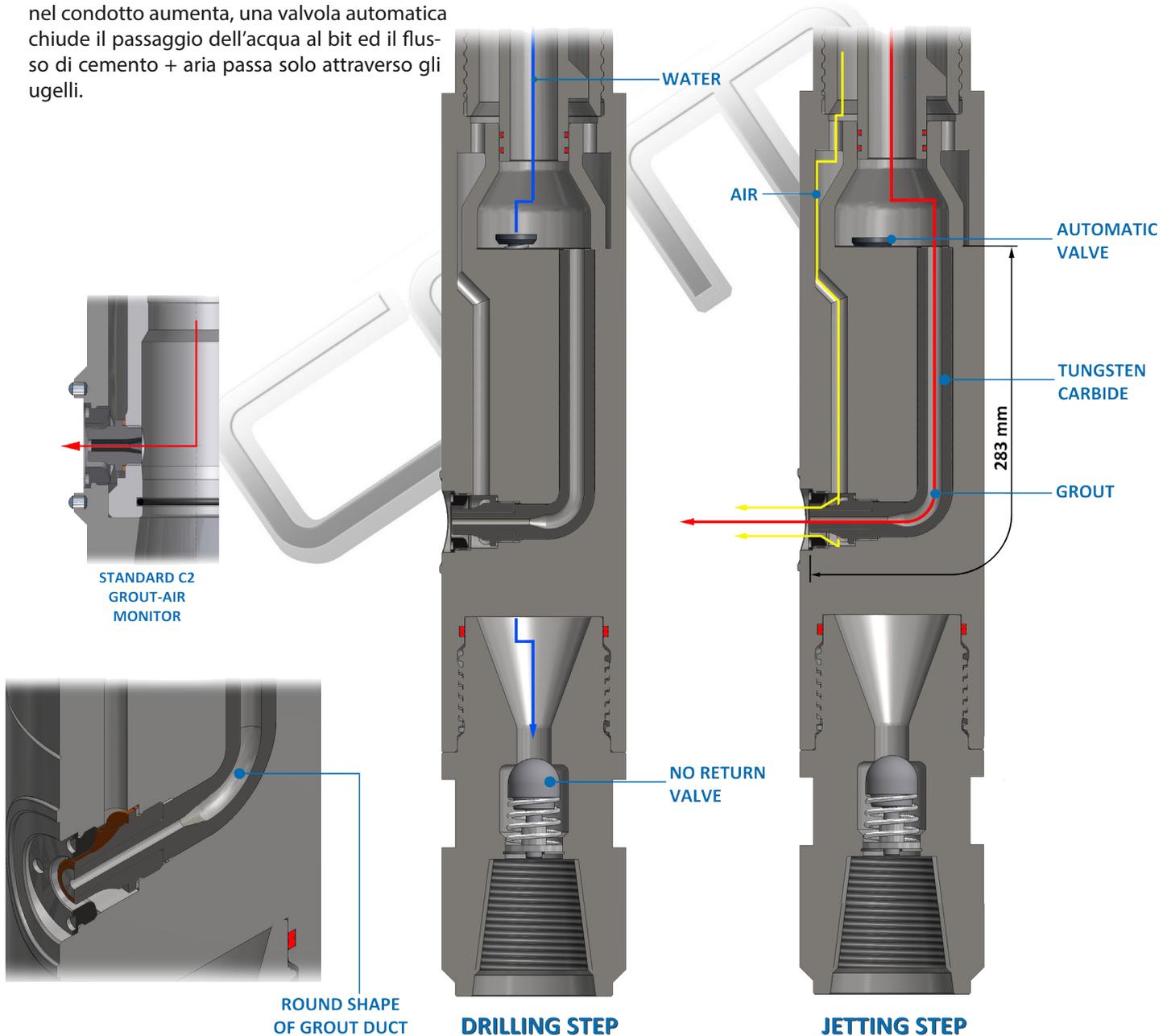
The complete system is CE certified.

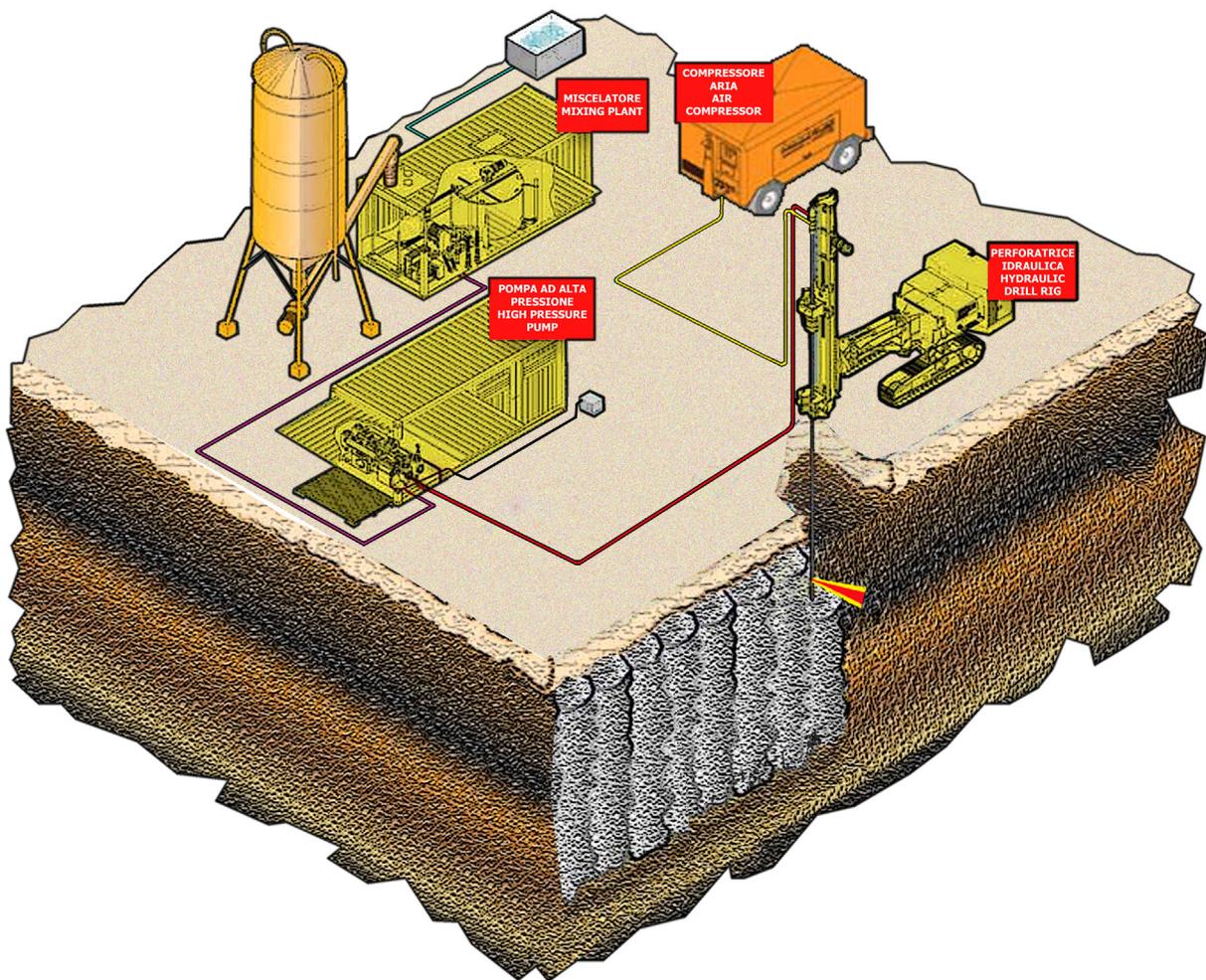


SISTEMA S.T.R.A.JET IV - S.T.R.A.JET SYSTEM IV

La CRM produce un monitor speciale denominato s.t.r.a.jet (straight turbulence reducing appliance). Si tratta di un monitor a due vie da usarsi con le aste CRM C2 d.114. In confronto con un monitor standard lo s.t.r.a.jet fornisce, a parità di pressione e portata della pompa in uso, una maggiore forza di taglio del getto di cemento. Lo speciale disegno del condotto interno del monitor mantiene il flusso laminare riducendo le perdite di carico, aumentando la forza di taglio del getto di cemento e di conseguenza il diametro della colonna di terreno consolidato. Nella fase di perforazione, è possibile usare acqua per lubrificare il bit. Nella fase di jet-grouting, quando la pressione nel condotto aumenta, una valvola automatica chiude il passaggio dell'acqua al bit ed il flusso di cemento + aria passa solo attraverso gli ugelli.

The CRM s.t.r.a.jet. (straight turbulence reducing appliance) is a two-ways nozzle holder equipped with d.114 C2 double fluid rods. In comparison with a standard two-ways nozzle holder the s.t.r.a.jet provides a greater cutting force of the grout mix on equal pump's pressure and flow rate. The special design of the grout inner duct reduces the drag by keeping the flow laminar. This longer duct enhances the cutting power of the grout flow and gets columns of consolidated soil of a greater diameter. In the drilling step it is possible to use water to lubricate the bottom bit. In the jetting step, when the grout pressure is increased, an inner automatic valve closes the water passages to the bit letting the grout and the air pass through the nozzles only.





SCHEMA IMPIANTO JET-GROUTING BIFLUIDO
DOUBLE FLUID JET-GROUTING PLANT

4.1 D.90 C2 - Schema generale - Complete plan

TECHNICAL SPECIFICATIONS					
SWIVEL TYPE	INLET	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-8C2TS650	1"-1/4	30	35	110	56 / 40
J-8C214550	1"-1/4	36 De	35	110	3 / 2,4
J-SW90278R	1"-1/4	20	30	105	56 / 40
J-SW914550	1"-1/4	36 De	35	110	3 / 2,4

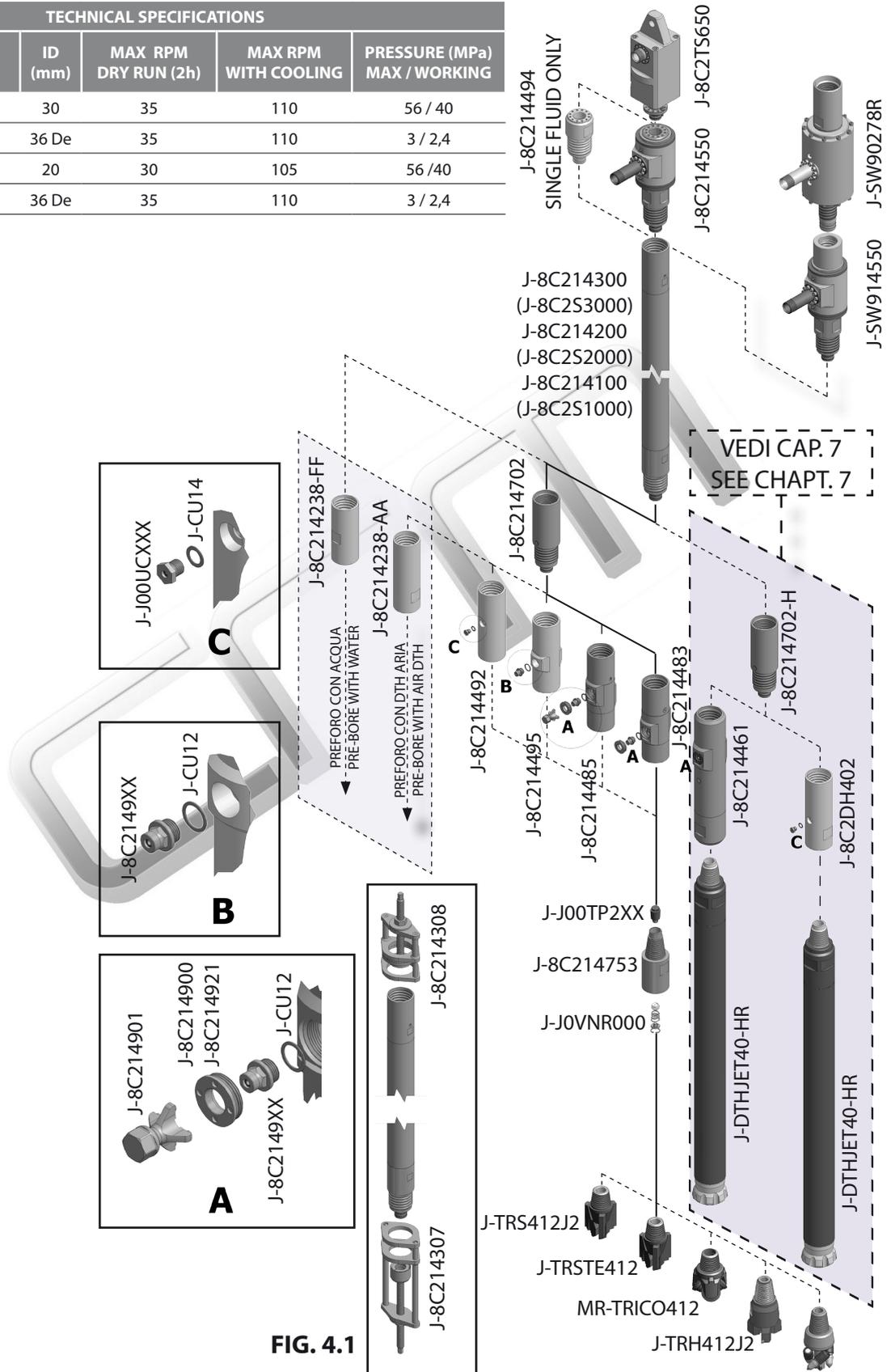


FIG. 4.1

CLAWBIT412

4.2^{D.90 C2}

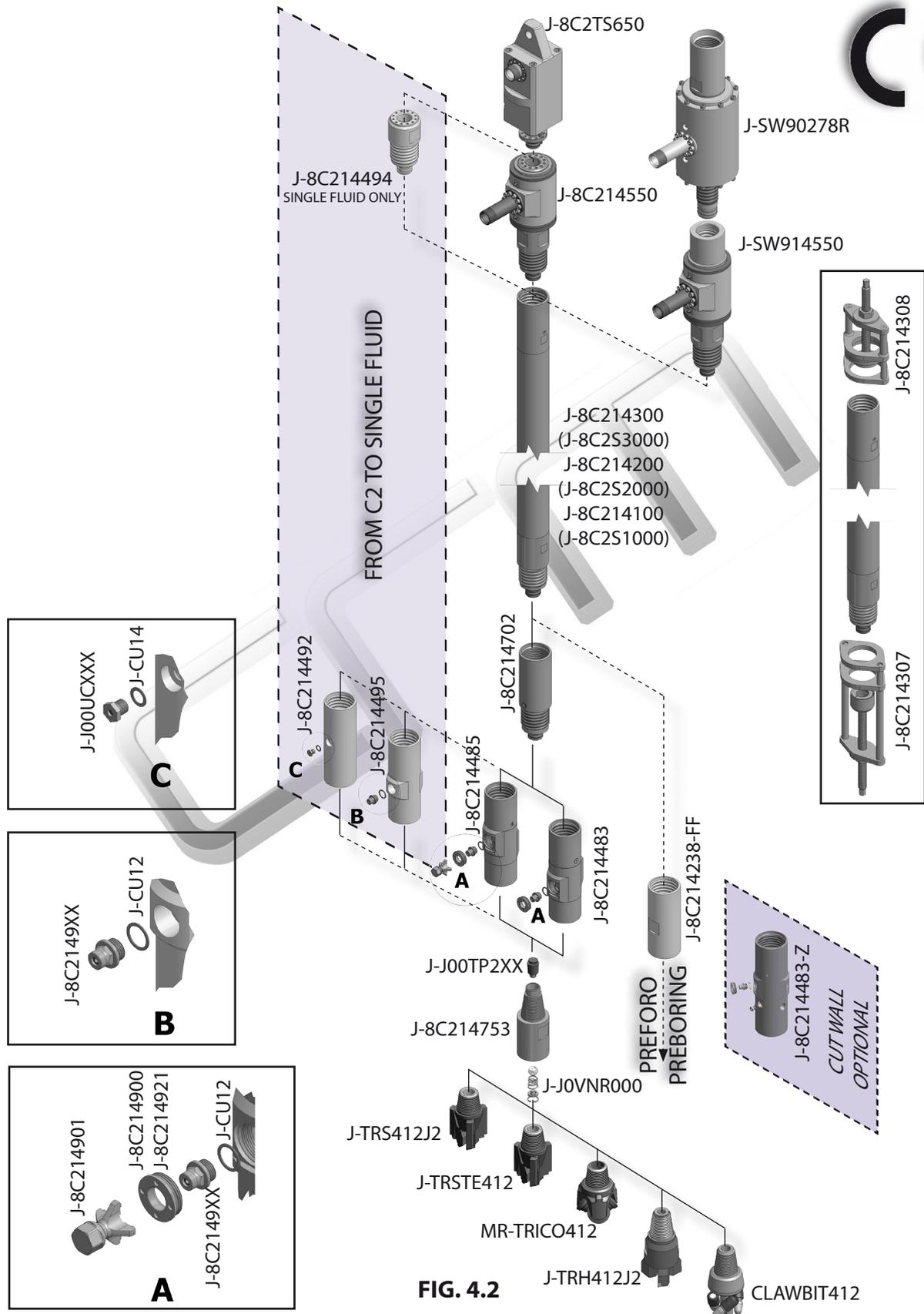


FIG. 4.2



D.90 C2 - REF. FIG. 4.2

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-8C2TS650	TESTA A.P. 410 L/MIN-560BAR	H.P. SWIVEL 410 L/MIN-560BAR			11
J-8C214550	TESTA ARIA C2	L.P. AIR SWIVEL C2			19
J-SW90278R	SWIVEL JET SOTTO TESTA 2"7/8 AR F.	UNDER ROTARY JET SWIVEL 2"7/8 A.R BOX			41
J-SW914550	SWIVEL BP PER SOTTOTESTA JET D.90	UNDER ROTARY LP SWIVEL JET D.90			22
0000000000000000					
J-8C214300	ASTA D. 88.9X3000 C2 1"1/4	ROD. D. 90X3000 C2			52,7
J-8C214200	ASTA D. 88.9X2000 C2 1"1/4	ROD. D. 90X2000 C2			37,2
J-8C214100	ASTA D. 88.9X1000 C2 1"1/4	ROD. D. 90X1000 C2			22
0000000000000000					
J-8C2S3000	ASTA D. 88.9X3000 C2 INTERNO ACCIAIO	ROD. D. 90X3000 C2 INNER STEEL			63
J-8C2S2000	ASTA D. 88.9X2000 C2 INTERNO ACCIAIO	ROD. D. 90X2000 C2 INNER STEEL			43
J-8C2S1000	ASTA D. 88.9X1000 C2 INTERNO ACCIAIO	ROD. D. 90X1000 C2 INNER STEEL			23,5
0000000000000000					
J-8C214483	MONITOR D. 88.9 C2	NOZZLE HOLDER D. 90 C2			8
J-8C214485	MONITOR D. 90 C2 ANTI USURA P910	NOZZLE HOLDER D. 90 C2 HEAVY DUTY			8
J-8C214702	RACCORDO C/V NO RIT.	AIR ADAPTER D. 90 C2 W/NO RET. VAL.			5,5
J-8C214753	PORTASCALPELLO C2 C/V NO RIT.	BIT ADAPTER C2 W/NO RET. VAL.			5,6
J-8C214900	UGELLO ARIA D. 23 C2	AIR NOZZLE D. 23 C2			0,05
J-8C214921	UGELLO ARIA D. 21 C2	AIR NOZZLE D. 21 C2			0,05
J-8C214920	UGELLO CEM. D. 2.0 C2	GROUT NOZZLE D. 2.0			0,1
J-8C214925	UGELLO CEM. D. 2.5 C2	GROUT NOZZLE D. 2.5			0,1
J-8C214930	UGELLO CEM. D. 3.0 C2	GROUT NOZZLE D. 3.0			0,1
J-8C214935	UGELLO CEM. D. 3.5 C2	GROUT NOZZLE D. 3.5			0,1
J-8C214940	UGELLO CEM. D. 4.0 C2	GROUT NOZZLE D. 4.0			0,1
J-8C214945	UGELLO CEM. D. 4.5 C2	GROUT NOZZLE D. 4.5			0,1
J-8C214950	UGELLO CEM. D. 5.0 C2	GROUT NOZZLE D. 5.0			0,1
J-8C214955	UGELLO CEM. D. 5.5 C2	GROUT NOZZLE D. 5.5			0,1
J-8C214960-H	UGELLO CEM. D. 6.0 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.0 HEAVY-DUTY			0,1
J-CU12	GUARN. UGELLO CEMENTO 1/2"	COPPER SEAL D. 1/2"			-
J-8C21490T	TAPPO M. 1"1/4 UGELLO ARIA	AIR NOZZLE PLUG			0,12
J-8C214901	CHIAVE UGELLO ARIA 8C214900	AIR NOZZLE REMOVING TOOL			0,15
J-J33TB012	TAPPO M. 1/2" GAS EX INC	GROUT NOZZLE PLUG C2			0,1
J-J00TP200	VALVOLA AUT. JET 30BAR	JET CHECK VALVE 30BAR			0,2
J-J00TP270	VALVOLA AUT. JET 70BAR	JET CHECK VALVE 70BAR			0,2
J-J00TP210	VALVOLA AUT. JET 100BAR	JET CHECK VALVE 100BAR			0,25
J-8C2TS651	KIT RICAMBI TESTA A.P.	H.P. SWIVEL SPARE PART KIT			-
J-8C2TS652	KIT GUARN. TESTA A.P.	H.P. SWIVEL SEALS KIT			-
J-8C2TS652-A	GUARN. CENTRALI TESTA 8C2TS650	H.P. SWIVEL MIDDLE SEALS KIT			-
J-8C2TS652-H	GUARN, CENTRALI ALTA VELOCITA'	HIGH SPEED MIDDLE SEALS KIT			-
J-8C214551	KIT GUARN. TESTA B.P. C2	L.P. SWIVEL SEAL KIT			-
J-SW90278R-S	KIT RICAMBI SWIVEL JET SOTTO TESTA J-SW90	UNDER ROTARY J-SW90 SW. SPARE PARTS			-
J-SW90278R-K	KIT GUARN. SWIVEL SOTTO TESTA J-SW90	UNDER ROTARY J-SW90 SWIVEL SEALS KIT			-
J-SW914550-K	KIT GUARNIZ. SWIVEL BP ARIA SOTTO T. JET D.90	UNDER ROTARY LOW PRESS. SW. SEALS KIT			-
J-8C214311	KIT GUARN. ASTA D. 88.9 C2	SEAL KIT ROD. C2			-
K35-P 69.2X73.7X3.5	K35-P 69.2X73.7 L=3.5 GUARNIZIONE ASTA ESTERNA 90 C2	K35-P 69.2X73.7 L=3.5 SEAL OUTER DUCT ROD 90 C2			-



D.90 C2 - REF. FIG. 4.2

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-8C214484	GUARN. MONITOR C2	NOZZLE HOLDER SEAL KIT			-
J-8C214703	KIT GUARN. RACCORDO VALVOLA C2	ADAPTER D. 90 C2 SEAL KIT			-
J-8C214709	COMPONENTI INTERNI RACC. VALV. D.90C2	D.90 C2 INNER COMP. MONITOR ADAPT.			-
J-JOVNR000	VALVOLA DI NON RITORNO COMPLETA	COMPLETE NO RETURN VALVE			0,03
MR-TRIC0412	TRICONO D. 4" 1/2 L2	ROCK BIT D. 4" 1/2 LH2 IADC 231			-
MR-TRSTE412	TRILAMA STEP D. 4" 1/2	DRAG BIT STEP D. 4" 1/2			-
CLAWBIT412	CLAW-BIT D. 114 (4" 1/2) 2" 3/8 AR	CLAW-BIT D. 114 (4" 1/2) 2" 3/8 AR			-
J-TRH412J2	TRILAMA CHEVRON D. 4"-1/2 JET 1/2"	CHEVRON DRAGBIT 4"-1/2 (1/2" JET NOZ.)			-
J-TRS412J2	TRILAMA STEP D. 4"-1/2 JET 1/2"	STEP DRAGBIT D. 4"-1/2 (1/2" JET NOZZLE)			-

CONFIGURAZIONI SPECIALI - SPECIAL CONFIGURATIONS

D.90 DA C2 A MONOFLUIDO - D.90 FROM C2 TO SINGLE FLUID

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-8C214494	RID. TESTA 8C2TS650-ASTA C2	SWIVEL ADAPTER 8C2TS650-ROD C2			5,2
J-8C214495	MONITOR D. 90 C2/JET 1 1/2" GAS	NOZZLE HOLDER D. 90 C2/JET 1 1/2" Th.			7,5
J-8C214492	MONITOR C2/JET 1	NOZZLE HOLDER C2/JET 1			7,5
J-J00UC200	UGELLO JET D. 2.0	JET NOZZLE D. 2.0			0,02
J-J00UC220	UGELLO JET D. 2.2	JET NOZZLE D. 2.2			0,02
J-J00UC250	UGELLO JET D. 2.5	JET NOZZLE D. 2.5			0,02
J-J00UC300	UGELLO JET D. 3.0	JET NOZZLE D. 3.0			0,02
J-J00UC350	UGELLO JET D. 3.5	JET NOZZLE D. 3.5			0,02
J-J00UC400	UGELLO JET D. 4.0	JET NOZZLE D. 4.0			0,02
J-CU14	GUARN. UGELLO 1/4"	NOZZLE COPPER SEAL D. 1/4"			-

ACCESSORI - ACCESSORIES

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-8C214238-FF	RIDUZ. D.90 C2 F/F. 2"-3/8AR PREFORO ACQUA	AD. D.90C2 F/F 2"-3/8 AR WATER PREBORE			6
J-8C214238-AA	RIDUZ. D.90 C2 F/F. 2"-3/8AR PREFORO ARIA	AD. D.90C2 F/F 2"-3/8 AR AIR PREBORE			7
J-8C214307	ESTRATTORE MANICOTTO INT. M. C2	MALE EXTRACTOR			6,5
J-8C214308	ESTRATTORE MANICOTTO INT. F. C2	FEMALE EXTRACTOR			5,4
J-8C214377	KIT ASSEMBLAGGIO ASTA	ROD ASSEMBLY KIT			-
J-8C214483-Z	MONITOR CUT WALL 2x150° C2+2x90° MONO	CUT WALL 2x150°+2x90° MONITOR			9,6

4.3 D.114 C2-Schema generale - Complete plan

TECHNICAL SPECIFICATIONS						
SWIVEL TYPE	INLET	FLUID TYPE	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-8C2T5700	1"-1/2	GROUT	35	30	105	56 / 40
J-8C212500	1"-1/2	AIR	56 De	30	105	3 / 2,4
J-AMHPS4J2	2"	GROUT	45	25	150	56 / 40
	2"	AIR	33 De			3 / 2,4
J-AMHPSWD2	1"-1/2	GROUT	35	30	105	56 / 40
	1"-1/2	AIR	22 De			3 / 2,4
J-SWC2312R	1"-1/4	GROUT	30	30	40	56 / 40
	1"-1/4	AIR	30			3 / 2,4

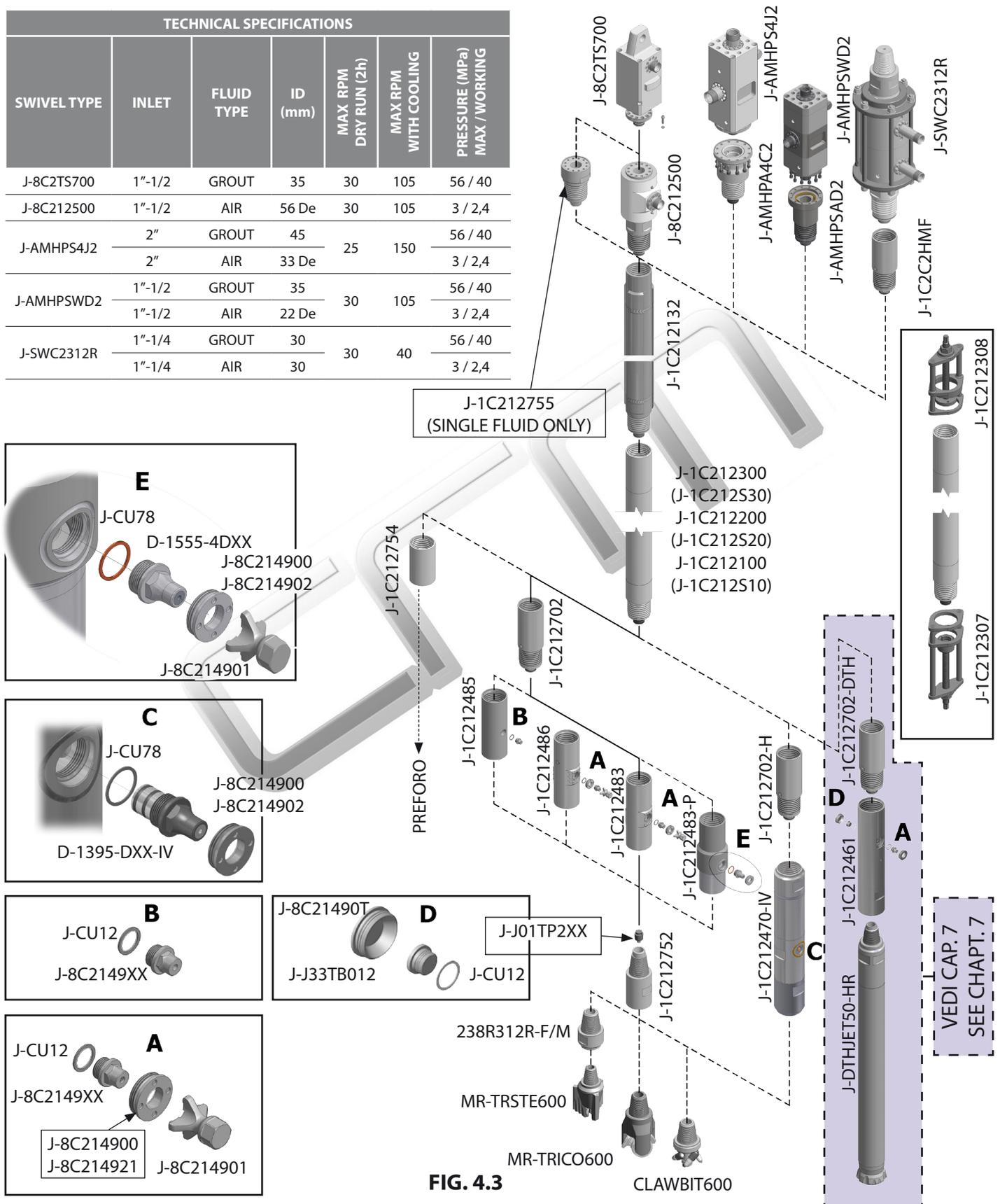


FIG. 4.3

4.4^{D.114 C2}

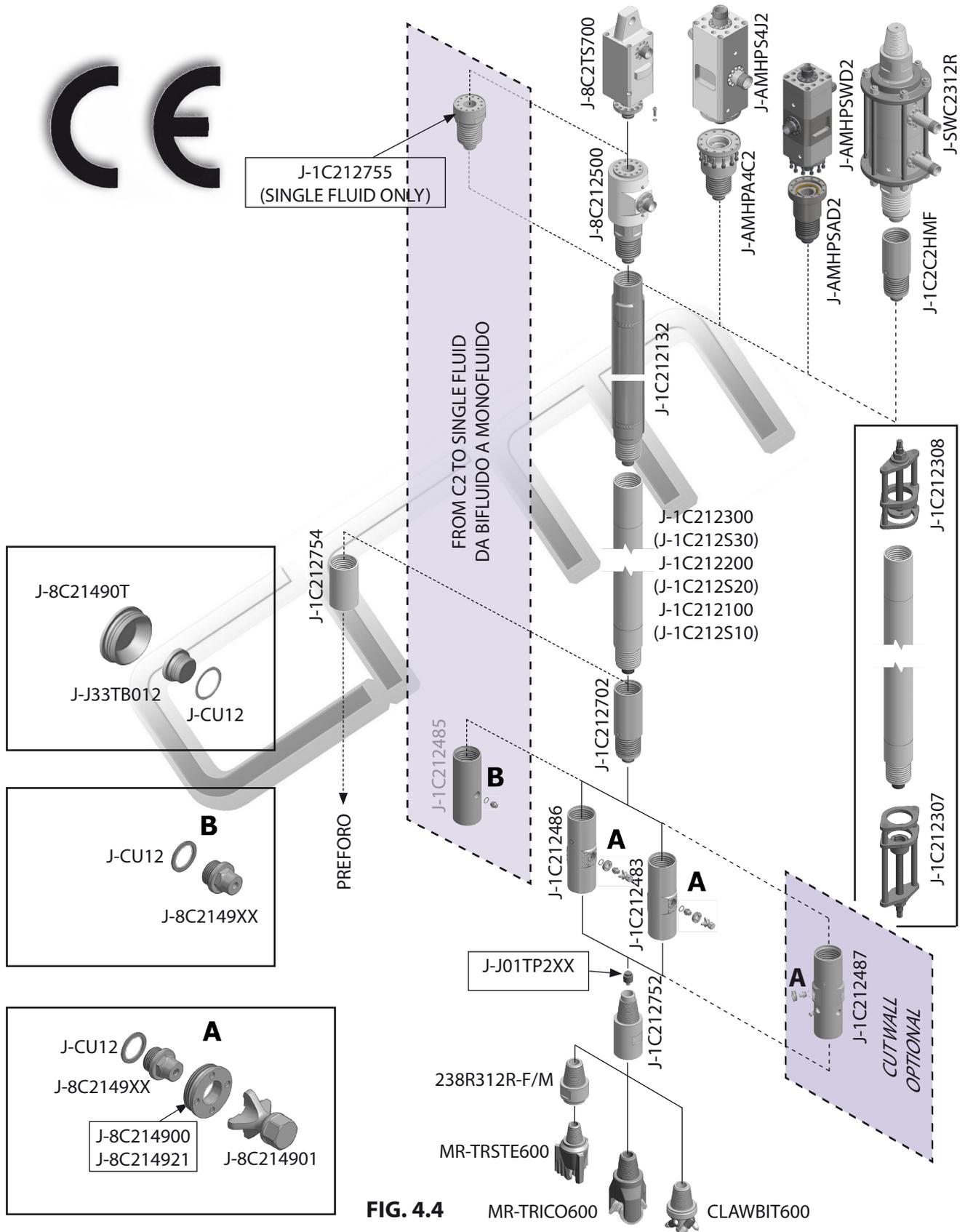
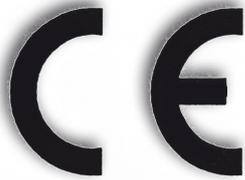


FIG. 4.4 MR-TRICO600 MR-TRSTE600 CLAWBIT600



D.114 C2 - REF. FIG. 4.4

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-8C2TS702-H	KIT GUARN, ALTA VELOCITA'	MAIN SEALS KIT H.P. SWIVEL HIGHT VEL.			-
J-8C212501	KIT GUARN. TESTA B.P. C2	AIR L.P. SWIVEL SEALS KIT			-
J-AMHPS4J2-B	KIT GUARNIZ. MODULAR SWIVEL J2 ARIA E SERVICE	SEALS KIT FOR MODULAR SWIVEL J2 AIR AND SERVICE			-
J-AMHPS4J2-A	KIT CUSCINETTI MODULAR SW. J2	MODULAR SW. J2 BEARINGS KIT			-
602-25	GUARNIZIONE 602-25 d.2,75"	SEAL 602-25 d.2,75"			-
J-SWC2312R-A	KIT RICAMBI SWIVEL SOTTO TESTA C2 JET	UNDER ROTARY SWIVEL SPARE PARTS			-
J-SWC2312R-B	KIT GUARNIZIONI SWIVEL SOTTO TESTA C2 JET	UNDER ROTARY SWIVEL SEALS KIT			-
J-1C212311	KIT GUARN. ASTA D. 114 C2	ROD SEALS KIT			-
K35 P 93.4X97.9X3.5	K35-P 93.4X97.9 L=3.5 ASTA ESTERNA D.114 C2	K35-P 93.4X97.9 L=3.5 SEAL OUTER DUCT ROD 114 C2			-
J-1C212703	KIT GUARN. RAC. VAL. D. 114 C2	NOZZLE HOLDER ADAPTER SEALS KIT			-
J-1C212484	GUARN. MONITOR D. 114 C2	NOZZLE HOLDER SEALS KIT			-
J-WMHP5WD2-A	KIT RICAMBI TESTA A.P. D.114 D2	D.114 D2 SWIVEL SPARE PARTS			-
J-WMHP5WD2-B	KIT GUARNIZIONI TESTA A.P. D.114 D2	D.114 D2 SWIVEL SEALS KIT			-
J-1C212489	ADATTATORE INT. MONITOR D.114 C2 N.2 UGELLI	D.114 C2 2 WAYS MONITOR INNER ADAPT.			2,6
J-1C212709	COMP. INTERNO RACC. VALVOLATO 1C212702	INNER COMPONENT FOR 1C212702 ADAPT.			3,3
CLAWBIT600	CLAWBIT D. 152 (6") 3" 1/2 A.R. M.	CLAW-BIT D. 152 (6") 3" 1/2 AR M.			12
MR-TRIC0600	TRICONO D. 6"-1/2 L2	ROCK BIT D. 6"-1/2 L2			9
238R312R-F/M	RID. 2" 3/8 AR-3" 1/2 AR F/M	ADAPTER 2"-3/8 AR BOX/PIN 3"-1/2 AR			6
MR-TRSTE600	TRILAMA STEP D. 6" (2"-3/8 AR M.)	DRAG BIT D. 6" (2" 3/8 AR PIN)			5
J-JOVNR112	VALVOLA DI NON RITORNO COMPLETA D. 114	COMPLETE NO RETURN VALVE D.114			0,2

CONFIGURAZIONI SPECIALI -SPECIAL CONFIGURATIONS

D.114 DA C2 A MONOFLUIDO -D.114 FROM C2 TO SINGLE FLUID

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-1C212755	RID. TESTA 8C2TS700 / ASTA C2 PER T1	SWIVEL 8C2TS700-ROD C2 ADAPT. FORT1			12
J-1C212485	MONITOR D. 114 C2/JET MONO	NOZZLE HOLD. D. 114 C2/JET SINGLE FLUID			8

ACCESSORI - ACCESSORIES

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-1C212486	MONITOR D. 114 C2 CON BOTTONI ANTI USURA	NOZZLE HOLD. W/H.D. NO WEAR BUTTON			16
J-1C212487	MONITOR D.114 C2 150° CUTTING WALL	NOZZLES H. D.114 C2 150° CUTTING WALL			16
J-1C212488	MONITOR D.114 C2 ANTI USURA P910	P910 ANTIWEARING D.114 C2 MONITOR			16
J-1C212754	RID. D.114 C2 F/F 3" 1/2 A.R.	D.114 C2 F/F 3"-1/2 AR DTH ADAPTER			12
J-1C212307	ESTRATTORE ASTA	ROD EXTRACTOR			10
J-1C212308	ESTRATTORE ASTA	ROD EXTRACTOR			9
J-1C212377	KIT ASSEMBLAGGIO ASTA	ROD ASSEMBLING KIT			-

4.5 D.114 C2 S.T.R.A.JET-IV

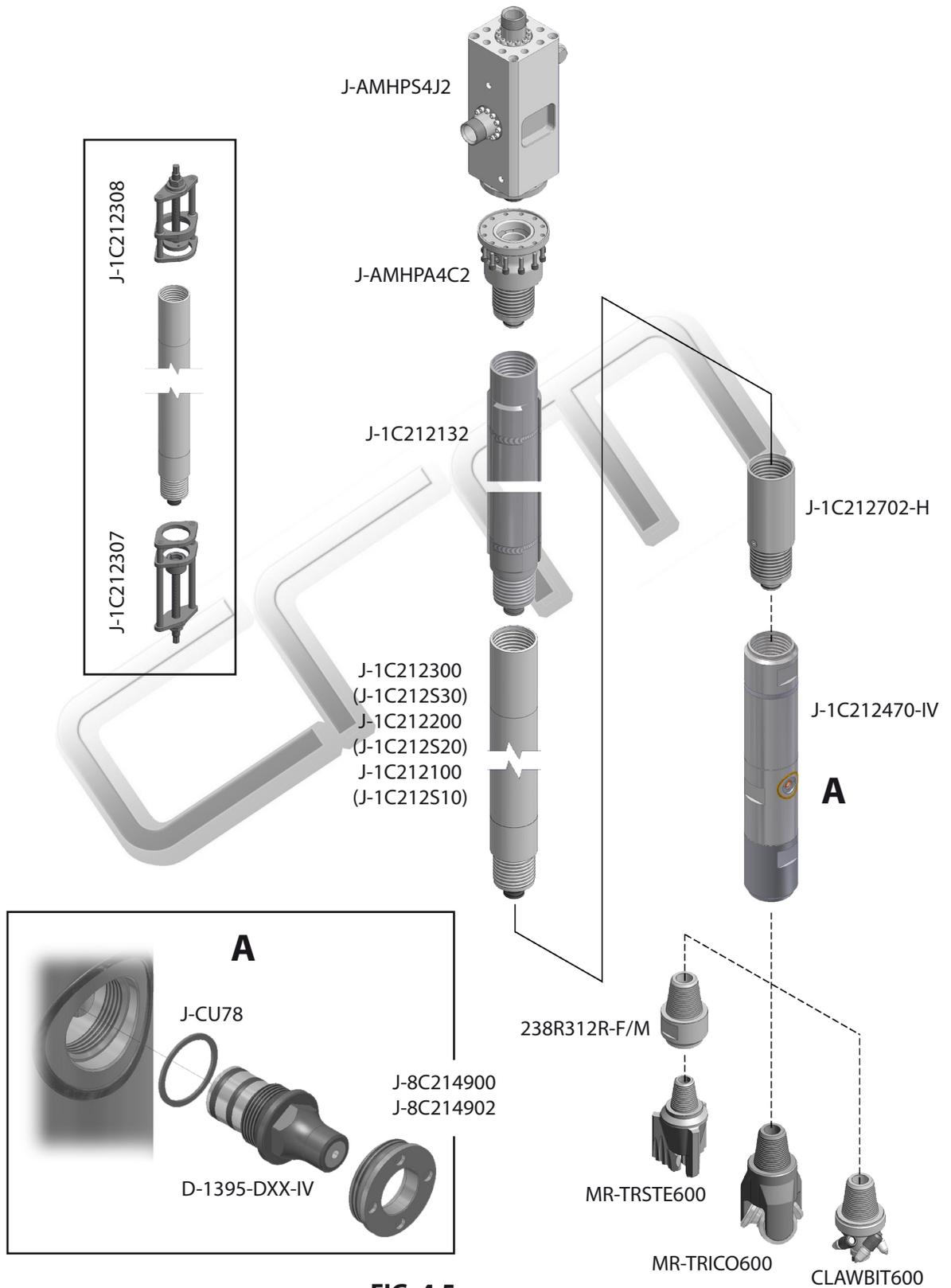


FIG. 4.5



D.114 C2 S.T.R.A.JET-IV (STRAIGHT TURBULENCE REDUCING APPLIANCE) - REF. FIG. 4.5

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-AMHPS4J2	MODULAR HP SWIVEL CEMENTO-ARIA (INLET 2")	MODULAR HP SWIVEL GROUT-AIR (INLET2")			58,7
J-AMHPA4C2	ADATT. MODULAR HP SWIVEL / ASTA D.114 C2	MOD. HP SWIVEL / ROD. D.114 C2 ADAPTER			12
◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇					
J-1C212132	ASTA D.114C2x1000 De132 CALETT. PER MANDR. MASSIMA COPPIA	ROD D.114x1000 O.D. 132 HOLLOW CLAMP MAX TORQUE			61
J-1C212300	ASTA D. 114X3000 C2	ROD. D. 114X3000 C2			76
J-1C212200	ASTA D. 114X2000 C2	ROD. D. 114X2000 C2			54
J-1C212100	ASTA D. 114X1000 C2	ROD. D. 114X1000 C2			32,6
◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇					
J-1C212530	ASTA D. 114X3000 C2 INTERNO ACCIAIO	ROD. D. 114X3000 C2 INNER STEEL			78
J-1C212520	ASTA D. 114X2000 C2 INTERNO ACCIAIO	ROD. D. 114X2000 C2 INNER STEEL			54
J-1C212510	ASTA D. 114X1000 C2 INTERNO ACCIAIO	ROD. D. 114X1000 C2 INNER STEEL			31
◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇					
J-1C212702-H	RACCORDO D. 114 C2 H.D. CON VALVOLA	ADAPTER D. 114 C2 H.D. C/VAL. NO RET.			11
J-1C212470-IV	MONITOR S.T.R.A. JET	S.T.R.A. JET NOZZLE HOLDER			46
J-8C214900	UGELLO ARIA D.23 C2	AIR NOZZLE D.23 C2			0,05
J-8C214902	UGELLO ARIA D.24 C2	AIR NOZZLE D.24 C2			0,05
D-1395-D45-IV	UGELLO CEM. S.T.R.A. JET D. 4.5	S.T.R.A. JET GROUT NOZZLE D. 4.5			0,16
D-1395-D50-IV	UGELLO CEM. S.T.R.A. JET D. 5.0	S.T.R.A. JET GROUT NOZZLE D. 5.0			0,16
D-1395-D55-IV	UGELLO CEM. S.T.R.A. JET D. 5.5	S.T.R.A. JET GROUT NOZZLE D. 5.5			0,16
D-1395-D60-IV	UGELLO CEM. S.T.R.A. JET D. 6.0	S.T.R.A. JET GROUT NOZZLE D. 6.0			0,16
D-1395-D65-IV	UGELLO CEM. S.T.R.A. JET D. 6.5	S.T.R.A. JET GROUT NOZZLE D. 6.5			0,16
D-1395-D70-IV	UGELLO CEM. S.T.R.A. JET D. 7.0	S.T.R.A. JET GROUT NOZZLE D. 7.0			0,16
D-1395-D75-IV	UGELLO CEM. S.T.R.A. JET D. 7.5	S.T.R.A. JET GROUT NOZZLE D. 7.5			0,16
D-1395-D80-IV	UGELLO CEM. S.T.R.A. JET D. 8.0	S.T.R.A. JET GROUT NOZZLE D. 8.0			0,16
D-1395-D85-IV	UGELLO CEM. S.T.R.A. JET D. 8.5	S.T.R.A. JET GROUT NOZZLE D. 8.5			0,16
D-1395-D90-IV	UGELLO CEM. S.T.R.A. JET D. 9.0	S.T.R.A. JET GROUT NOZZLE D. 9.0			0,16
D-1395-T23	TAPPO D. 23 UGELLO ARIA A PERDERE	D. 23 REPLACEABLE PLUG			0,05
J-CU78	GUARN. UGELLO CEMENTO 7/8"	COPPER SEAL D. 7/8"			-
CLAWBIT600	CLAWBIT D. 152 (6") 3" 1/2 A.R. M.	CLAW-BIT D. 152 (6") 3" 1/2 AR M.			12
MR-TRIC0600	TRICONO D. 6"-1/2 L2	ROCK BIT D. 6"-1/2 L2			9
238R312R-F/M	RID. 2" 3/8 AR-3" 1/2 AR F/M	ADAPTER 2"-3/8 AR BOX/PIN 3"-1/2 AR			6
MR-TRSTE600	TRILAMA STEP D. 6" (2"-3/8 AR M.)	DRAG BIT D. 6" (2" 3/8 AR PIN)			5
J-AMHPS4J2-B	KIT GUARNIZ. MODULAR SWIVEL J2 ARIA E SERVICE	SEALS KIT FOR MODULAR SWIVEL J2 AIR AND SERVICE			-
J-AMHPS4J2-A	KIT CUSCINETTI MODULAR SW. J2	MODULAR SW. J2 BEARINGS KIT			-
602-25	GUARNIZIONE 602-25 d.2,75"	SEAL 602-25 d.2,75"			-
J-1C212311	KIT GUARN. ASTA D. 114 C2	ROD SEAL KIT			-
K35 P 93.4X97.9X3.5	K35-P 93.4X97.9 L=3.5 ASTA ESTERNA D.114 C2	K35-P 93.4X97.9 L=3.5 SEAL OUTER DUCT ROD 114 C2			-
J-1C212703	KIT GUARN. RAC. VAL. D. 114 C2	NOZZLE HOLDER ADAPTER SEAL KIT			-

4.6 D.114 C2 PLUS

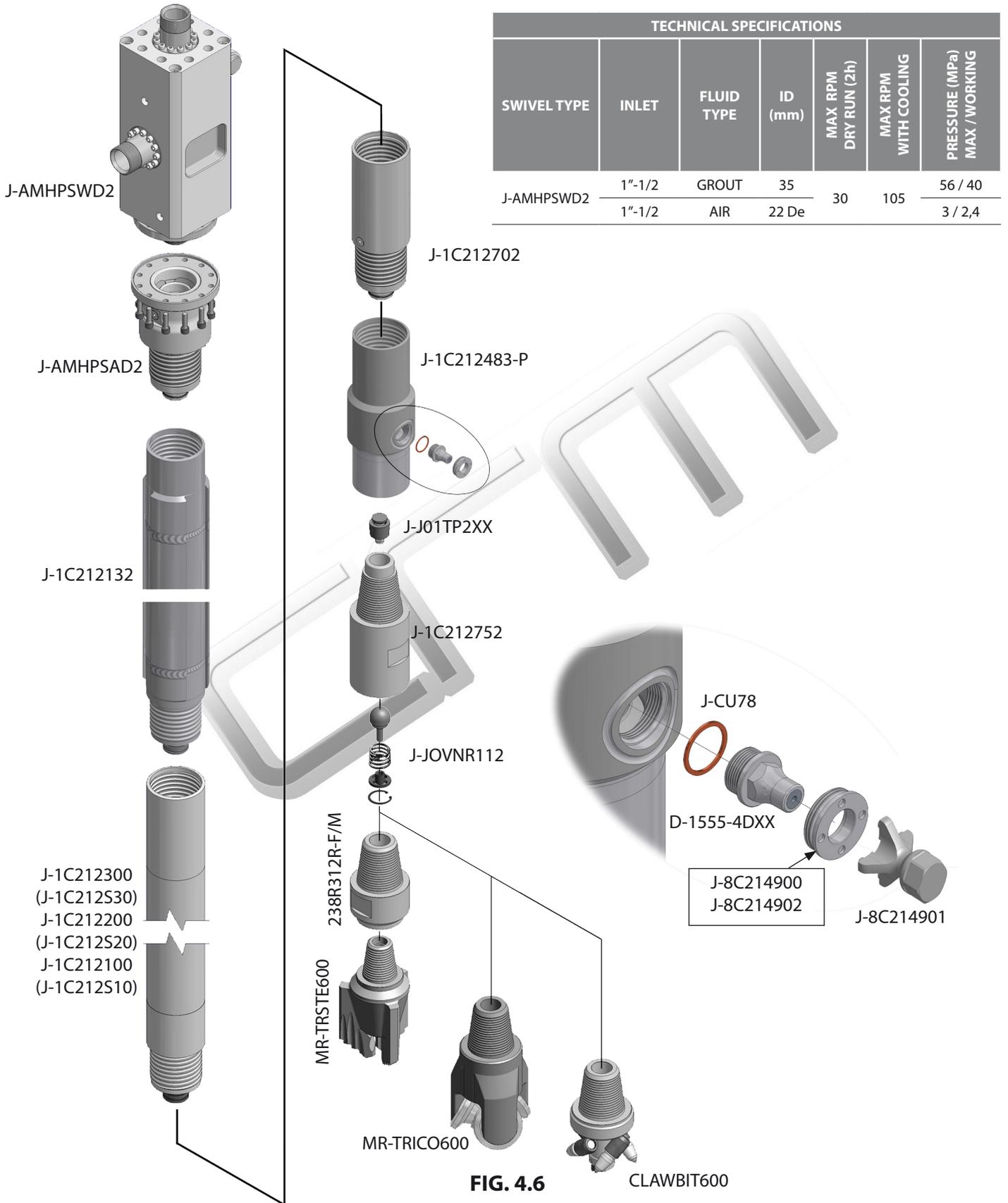


FIG. 4.6

CLAWBIT600



D.114 C2 PLUS - REF. FIG. 4.6

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-AMHPSWD2	TESTA A.P. D. 35 D2 (CEMENTO 700 L/min-560 bar; ARIA 18000 L/min-17-24 bar)	H.P. SWIVEL D. 35 D2 (GROUT 700 L/min-560 bar; AIR 18000 L/min-17-24 bar)			46
J-AMHPSAD2	ADATTAT. TESTA A.P. D.35 D2/ASTE D.114 C2	H.P. SWIVEL D.35 D2/ROD D.114 C2 ADAPT.			11
00000000000000					
J-1C212132	ASTA D.114C2x1000 De132 CALETT. PER MANDR. MASSIMA COPPIA	ROD D.114x1000 O.D. 132 HOLLOW CLAMP MAX TORQUE			61
J-1C212300	ASTA D. 114X3000 C2	ROD. D. 114X3000 C2			76
J-1C212200	ASTA D. 114X2000 C2	ROD. D. 114X2000 C2			54
J-1C212100	ASTA D. 114X1000 C2	ROD. D. 114X1000 C2			32,6
00000000000000					
J-1C212530	ASTA D. 114X3000 C2 INTERNO ACCIAIO	ROD. D. 114X3000 C2 INNER STEEL			78
J-1C212520	ASTA D. 114X2000 C2 INTERNO ACCIAIO	ROD. D. 114X2000 C2 INNER STEEL			54
J-1C212510	ASTA D. 114X1000 C2 INTERNO ACCIAIO	ROD. D. 114X1000 C2 INNER STEEL			31
00000000000000					
J-1C212483-P	MONITOR D. 114 C2 PLUS	NOZZLE HOLDER D. 114 C2 PLUS TYPE			16,5
J-1C212702	RACCORDO CON VALVOLA	AIR ADAPTER H.D. W/NO RET. VAL.			11
D-1555-4D60	UGELLO CEMENTO D.6.0-7/8	GROUT NOZZLE D. 6.0-7/8			0,2
D-1555-4D65	UGELLO CEMENTO D.6.5-7/8	GROUT NOZZLE D. 6.5-7/8			0,2
D-1555-4D70	UGELLO CEMENTO D.7.0-7/8	GROUT NOZZLE D. 7.0-7/8			0,2
D-1555-4D75	UGELLO CEMENTO D.7.5-7/8	GROUT NOZZLE D. 7.5-7/8			0,2
D-1555-4D80	UGELLO CEMENTO D.8.0-7/8	GROUT NOZZLE D. 8.0-7/8			0,2
D-1555-4D85	UGELLO CEMENTO D.8.5-7/8	GROUT NOZZLE D. 8.5-7/8			0,2
D-1555-4D90	UGELLO CEMENTO D.9.0-7/8	GROUT NOZZLE D. 9.0-7/8			0,2
J-8C214900	UGELLO ARIA D. 23 C2	AIR NOZZLE D. 23 C2			0,05
J-8C214902	UGELLO ARIA D. 24 C2	AIR NOZZLE D. 24 C2			0,05
J-CU78	GUARNIZIONE UGELLO CEMENTO 7/8" I.D. 30	COPPER SEAL D. 7/8" I.D. 30			-
J-J01TP212	VALVOLA AUTOMATICA 120BAR	CHECK VALVE 120BAR			0,25
J-J01TP270	VALVOLA AUTOMATICA 70BAR	CHECK VALVE 70BAR			0,2
J-8C214901	CHIAVE UGELLO ARIA 8C214900	AIR NOZZLE REMOVING TOOL			0,15
J-8C21490T	TAPPO M. 1"-1/4 UGELLO ARIA	AIR NOZZLE PLUG			0,12
J-J33TB078	TAPPO M. 7/8" GAS HEX INC.	GROUT NOZZLE PLUG C2 7/8" GAS			0,1
J-1C212311	KIT GUARN. ASTA D. 114 C2	ROD SEALS KIT			-
K35 P 93.4X97.9X3.5	K35-P 93.4X97.9 L=3.5 ASTA ESTERNA D.114 C2	K35-P 93.4X97.9 L=3.5 SEAL OUTER DUCT ROD 114 C2			-
J-1C212703	KIT GUARN. RAC. VAL. D. 114 C2	NOZZLE HOLDER ADAPTER SEALS KIT			-
J-1C212484	GUARN. MONITOR D. 114 C2	NOZZLE HOLDER SEALS KIT			-
J-WMHP2WD2-A	KIT RICAMBI TESTA A.P. D.114 D2	D.114 D2 SWIVEL SPARE PARTS			-
J-WMHP2WD2-B	KIT GUARNIZIONI TESTA A.P. D.114 D2	D.114 D2 SWIVEL SEALS KIT			-
CLAWBIT600	CLAWBIT D. 152 (6") 3" 1/2 A.R. M.	CLAW-BIT D. 152 (6") 3" 1/2 AR M.			12
MR-TRIC0600	TRICONO D. 6"-1/2 L2	ROCK BIT D. 6"-1/2 L2			9
238R312R-F/M	RID. 2" 3/8 AR-3" 1/2 AR F/M	ADAPTER 2"-3/8 AR BOX/PIN 3"-1/2 AR			6
MR-TRSTE600	TRILAMA STEP D. 6" (2"-3/8 AR M.)	DRAG BIT D. 6" (2" 3/8 AR PIN)			5
J-JOVNR112	VALVOLA DI NON RITORNO COMPLETA D. 114	COMPLETE NO RETURN VALVE D.114			0,2

4.7^{D.114 C2H}

TECHNICAL SPECIFICATIONS						
SWIVEL TYPE	INLET	FLUID TYPE	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-WMHPASD2	1"-1/2	GROUT	35	30	105	56 / 40
	1"-1/2	WATER	22 De			56 / 45

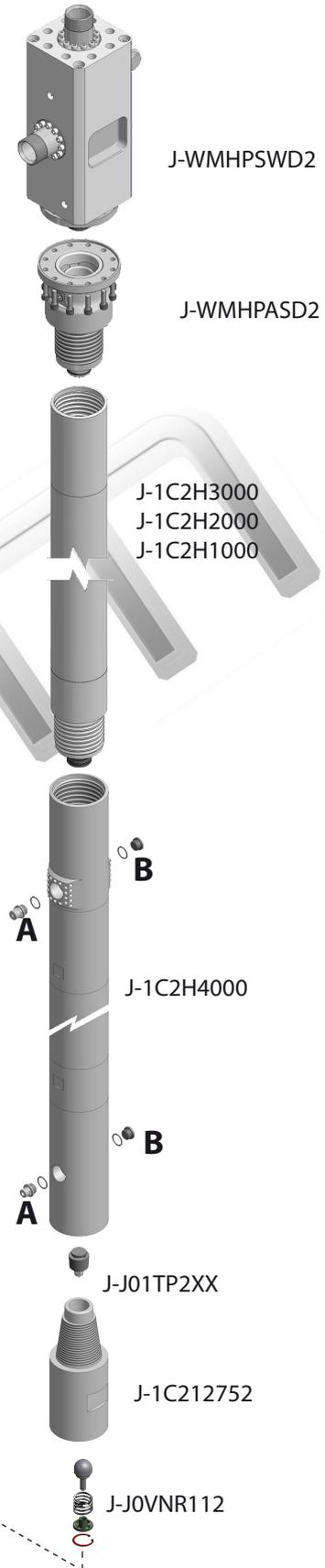
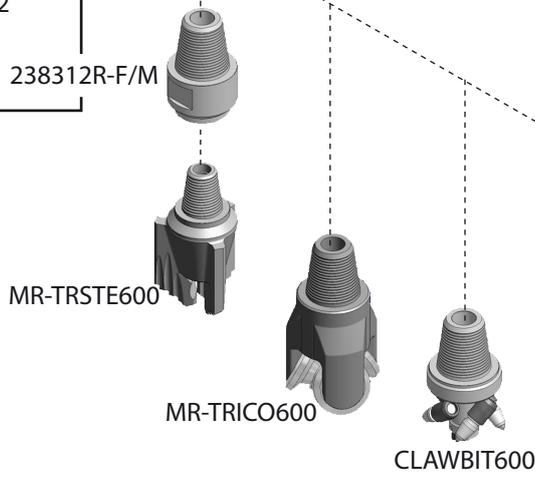
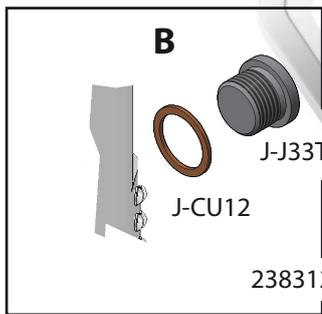
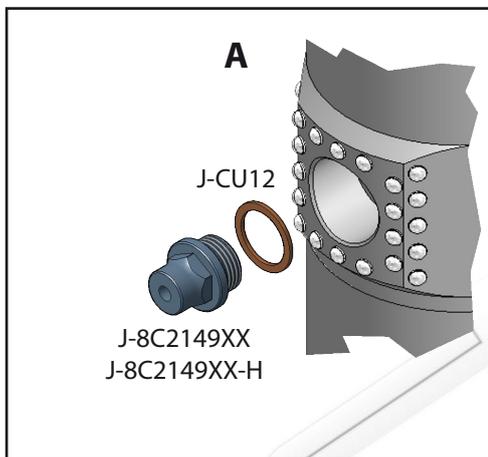


FIG. 4.7



D.114 C2H - REF. FIG. 4.7

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-WMHPSWD2	D2 HP SWIVEL CEMENTO-ACQUA (INLET 1"-1/2)	HP D2 SWIVEL GROUT-WATER (INLET 1"-1/2)			46
J-WMHPASD2	ADATTATORE D2 HP SWIVEL / ASTA D.114 D2-C2H	D2 HP SWIVEL / ROD D.114 D2-C2H ADAPTER			12
J-1C2H3000	ASTA D. 114X3000 C2H 1"-1/2	ROD. D. 114X3000 C2H 1"-1/2			88,7
J-1C2H2000	ASTA D. 114X2000 C2 1"-1/2	ROD. D. 114X2000 C2H 1"-1/2			59,3
J-1C2H1000	ASTA D. 114X1000 C2 1"-1/2	ROD. D. 114X1000 C2H 1"-1/2			33,9
J-1C2H4000	MONITOR C2H JET L=1000	C2H JET NOZZLES HOLDER L=1000			57,5
J-1C212752	PORTASCALPELLO D. 114 C2 MAX C/V	BIT ADAPTER D. 114 C2 MAX C/V			12,5
J-8C214980-H	UGELLO CEM. D. 8.0 C2 HEAVY DUTY	GROUT NOZZLE D. 8.0 HEAVY DUTY			0,12
J-8C214975-H	UGELLO CEM. D. 7.5 C2 HEAVY DUTY	GROUT NOZZLE D. 7.0 HEAVY DUTY			0,12
J-8C214970-H	UGELLO CEM. D. 7.0 C2 HEAVY DUTY	GROUT NOZZLE D. 7.0 HEAVY DUTY			0,12
J-8C214967-H	UGELLO CEM. D.6.7 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.7 HEAVY DUTY			0,12
J-8C214965-H	UGELLO CEM. D. 6.5 C2 HEAVY DUTY	GROUT NOZZLE D. 6.5 HEAVY DUTY			0,12
J-8C214963-H	UGELLO CEM. D.6.3 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.3 HEAVY DUTY			0,12
J-8C214960-H	UGELLO CEM. D. 6.0 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.0 HEAVY-DUTY			0,12
J-8C214955	UGELLO CEM. D. 5.5 C2	GROUT NOZZLE D. 5.5			0,1
J-8C214950	UGELLO CEM. D. 5.0 C2	GROUT NOZZLE D. 5.0			0,1
J-8C214945	UGELLO CEM. D. 4.5 C2	GROUT NOZZLE D. 4.5			0,1
J-8C214940	UGELLO CEM. D. 4.0 C2	GROUT NOZZLE D. 4.0			0,1
Nota: Ugelli cemento-acqua intercambiabili - Note: Grout and water nozzles are interchangeable					
◊◊◊◊◊◊◊◊◊◊◊◊◊◊					
J-CU12	GUARN. UGELLO CEMENTO 1/2"	COPPER SEAL D. 1/2"			-
J-J01TP212	VALVOLA AUT. JET 120BAR	JET CHECK VALVE 120BAR			0,25
J-J01TP270	VALVOLA AUT. JET 70BAR	JET CHECK VALVE 70BAR			0,2
J-J33TB012	TAPPO M. 1/2" GAS EX INC	GROUT NOZZLE PLUG C2			0,1
◊◊◊◊◊◊◊◊◊◊◊◊◊◊					
J-WMHP54C2-A	KIT RICAMBI MODULAR SWIVEL C2H	C2H MODULAR SWIVEL SPARE KIT			-
J-WMHP54C2-B	KIT GUARNIZ. MODULAR SWIVEL C2H	C2H MODULAR SWIVEL SEAL KIT			-
J-1C2H3011	KIT GUARNIZ. ASTA C2H D.114	C2H D.114 ROD SEALS KIT			-
J-1C2H4001	KIT GUARNIZ. MONITOR C2H D.114	C2H D.114 NOZZLES HOLDER SEALS KIT			-
◊◊◊◊◊◊◊◊◊◊◊◊◊◊					
CLAWBIT600	CLAW-BIT D. 152 (6") 3" 1/2 AR M.	CLAW-BIT D. 152 (6") 3" 1/2 AR M.			12
MR-TRIC0600	TRICONO D. 6 " L2	ROCK BIT D. 6" L2			9
238R312R-F/M	RID. 2" 3/8 AR-3" 1/2 AR F/M	ADAPTER 2" 3/8 AR BOX/PIN 3"-1/2 AR			6
MR-TRSTE600	TRILAMA STEP D. 6" 2"-3/8 AR	DRAG BIT D. 6" 2"-3/8 AR PIN			5
J-JOVNR112	VALVOLA DI NON RITORNO COMPLETA D.114	COMPLETE NO-RETURN VALVE D.114			0,2

4.8^{D.127 C2}

TECHNICAL SPECIFICATIONS

SWIVEL TYPE	INLET	FLUID TYPE	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-AMHPS4J2	2"	GROUT	45	25	150	56 / 40
	2"	AIR	33 De			3 / 2,4

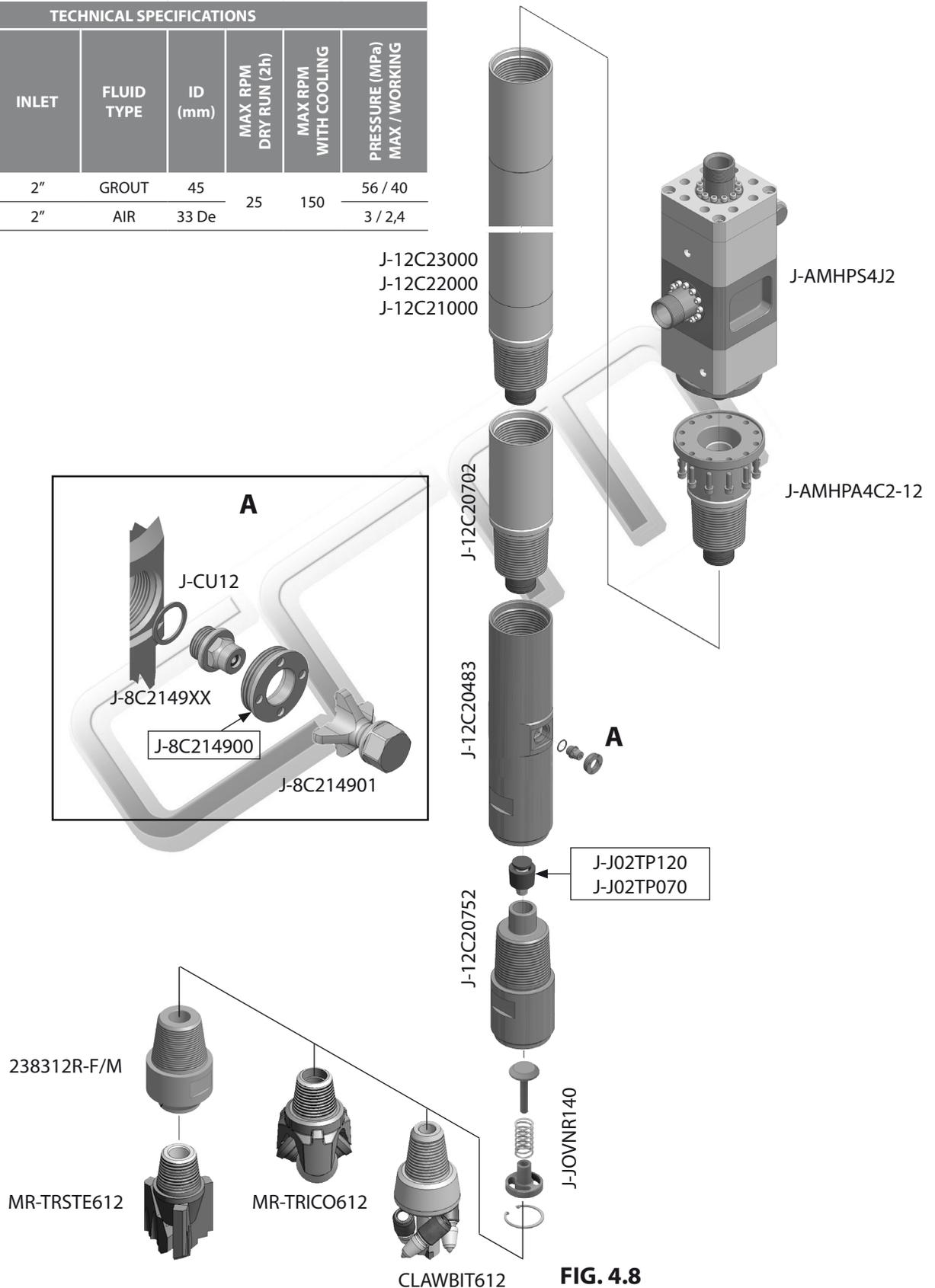


FIG. 4.8



D.127 C2 - REF. FIG. 4.8

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-AMHPS4J2	MODULAR HP SWIVEL CEMENTO-ARIA (INLET 2")	MODULAR HP SWIVEL GROUT-AIR (INLET 2")			58,7
J-AMHPA4C2-12	RIDUZ. TESTA A.P. MODULARE D.127 C2	MOD. SWIVEL ADAPTER D. 127 C2			18
0000000000000000					
J-12C23000	ASTA D. 127X3000 C2 Di=50	ROD. D. 127X3000 C2 I.D.=50			102
J-12C22000	ASTA D. 127X2000 C2 Di=50	ROD. D. 127X2000 C2 I.D.=50			72
J-12C21000	ASTA D. 127X1000 C2 Di=50	ROD. D. 127X1000 C2 I.D.=50			42
J-12C20702	ADATT. MONITOR D.127 C2 CON VALVOLA	D.127 C2 NOZZLES H. ADAPTER W/VAL.			18
J-12C20483	MONITOR D.127C2 Di=50	C2 D.127 NOZZLES HOLDER I.D.=50			20
J-12C20752	PORTASCALPELLO D.127 C2 CON VALVOLA	C2 D.127 BIT ADAPTER WITH VALVE			19,4
J-8C214980-H	UGELLO CEMENTO D. 8.0 C2 HEAVY-DUTY	GROUT NOZZLE D. 8.0 C2 HEAVY-DUTY			0,12
J-8C214975-H	UGELLO CEMENTO D.7.5 C2 HEAVY-DUTY	GROUT NOZZLE D. 7.5 C2 HEAVY-DUTY			0,12
J-8C214970-H	UGELLO CEMENTO D. 7.0 C2 HEAVY-DUTY	GROUT NOZZLE D. 7.0 C2 HEAVY-DUTY			0,12
J-8C214967-H	UGELLO CEMENTO D. 6.7 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.7 C2 HEAVY-DUTY			0,12
J-8C214965-H	UGELLO CEMENTO D. 6.5 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.5 C2 HEAVY-DUTY			0,12
J-8C214963-H	UGELLO CEMENTO D. 6.3 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.3 C2 HEAVY-DUTY			0,12
J-8C214960-H	UGELLO CEMENTO D. 6.0 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.0 C2 HEAVY-DUTY			0,12
J-8C214955	UGELLO CEMENTO D. 5.5 C2	GROUT NOZZLE D. 5.5 C2			0,1
J-8C214950	UGELLO CEMENTO D. 5.0 C2	GROUT NOZZLE D. 5.0 C2			0,1
J-8C214945	UGELLO CEMENTO D. 4.5 C2	GROUT NOZZLE D. 4.5 C2			0,1
J-8C214940	UGELLO CEMENTO D. 4.0 C2	GROUT NOZZLE D. 4.0 C2			0,1
J-8C214900	UGELLO ARIA D. 23 C2	AIR NOZZLE D. 23 C2			0,1
J-CU12	GUARNIZIONE UGELLO CEMENTO D. 1/2"	COPPER SEAL D. 1/2"			-
J-J02TP120	VALVOLA AUTOMATICA 120BAR	CHECK VALVE 120BAR			0,5
J-J02TP070	VALVOLA AUTOMATICA 70BAR	CHECK VALVE 70BAR			0,25
J-JOVNR140	VALVOLA NON RITORNO COMPLETA D.127/140	COMPLETE NO-RETURN VALVE D.127/140			-
J-8C214901	CHIAVE UGELLO ARIA 8C214900	AIR NOZZLE REMOVING TOOL			0,15
J-8C21490T	TAPPO M. 1"-1/4 UGELLO ARIA	AIR NOZZLE PLUG			0,12
J-J33TB012	TAPPO M. 1/2" GAS HEX INC.	GROUT NOZZLE PLUG C2			0,1
0000000000000000					
J-AMHPS4J2-B	KIT GUARNIZ. MODULAR SWIVEL J2 ARIA E SERVICE	SEALS KIT FOR MODULAR SWIVEL J2 AIR AND SERVICE			-
J-AMHPS4J2-A	KIT CUSCINETTI MODULAR SW. J2	MODULAR SW. J2 BEARINGS KIT			-
602-25	GUARNIZIONE 602-25 d.2,75"	SEAL 602-25 d.2,75"			-
J-12C23011	KIT GUARNIZ. ASTA D.127 C2	D.127 C2 ROD SEAL KIT			-
J-12C20703	KIT GUARNIZ. ADATT. MONITOR D.127 C2	D.127 C2 NOZZLES H. ADAPTER SEAL KIT			-
J-12C20484	KIT GUARNIZ. MONITOR D.127 C2	D.127 C2 NOZZLES HOLDER SEAL KIT			-
0000000000000000					
CLAWBIT612	CLAW-BIT D. 6"-1/2 -165 3"-1/2 A.R.	CLAW-BIT D. 6"-1/2 -165 3"-1/2 A.R.			-
MR-TRIC0612	TRICONO D.6"-1/2 L2 3"-1/2 A.R.	DRAG-BIT D.6"-1/2 L2 3"-1/2 A.R.			-
238R312R-F/M	RID. 2"-3/8 A.R. F/M 3"-1/2 A.R.	2"-3/8 A.R. F/M 3"-1/2 A.R. ADAPTER			-
MR-TRSTE612	TRILAMA STEP D.6"-1/2	STEP DRAG BIT D.6"-1/2			-

4.9^{D.127 C2 S.T.R.A.JET DOUBLE NOZZLE}

TECHNICAL SPECIFICATIONS						
SWIVEL TYPE	INLET	FLUID TYPE	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-AMHPS4J2	2"	GROUT	45	25	150	56 / 40
	2"	AIR	33 De			3 / 2,4

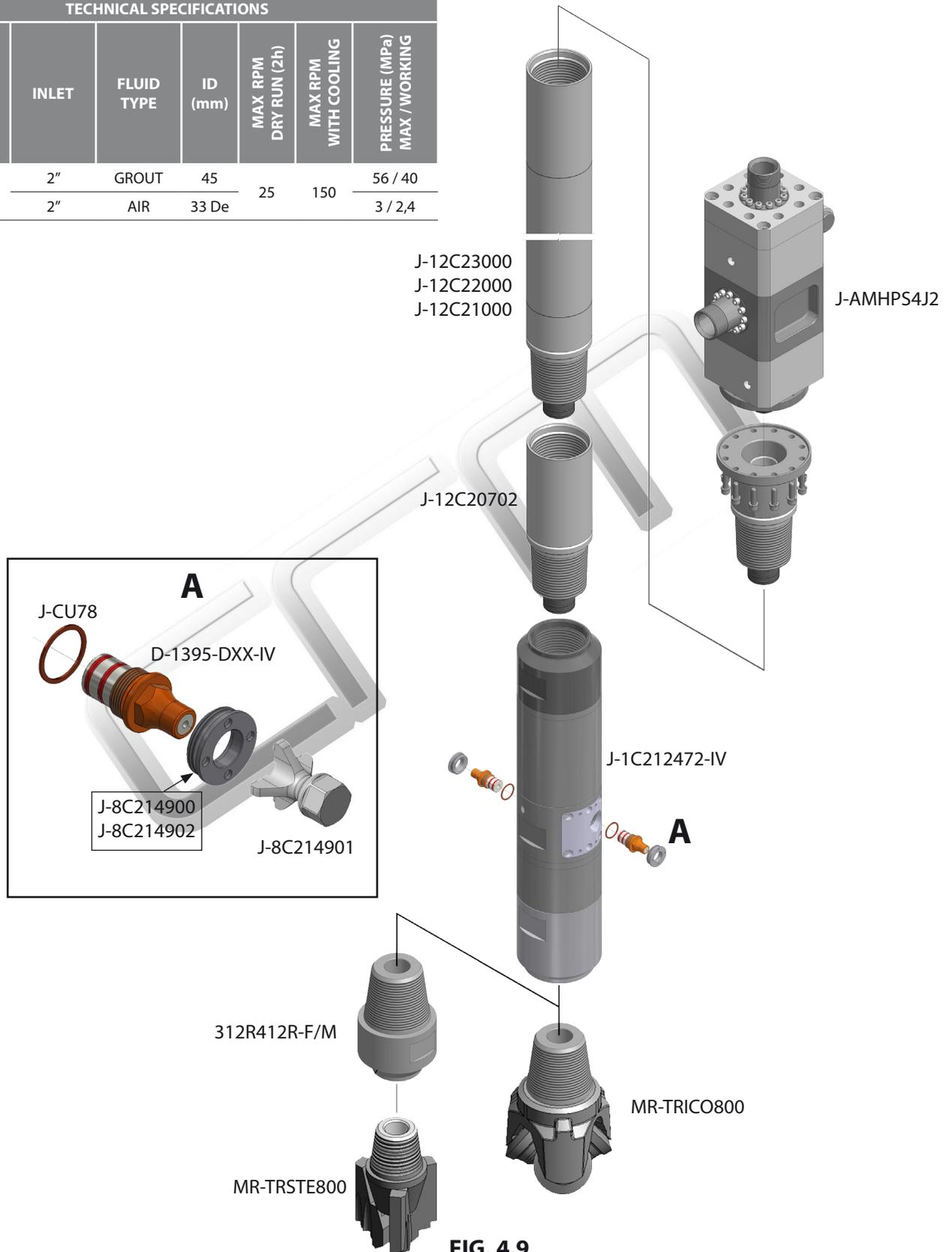


FIG. 4.9



D.127 C2 S.T.R.A.JET DOUBLE NOZZLE - REF. FIG. 4.9

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-AMHPS4J2	MODULAR HP SWIVEL CEMENTO-ARIA (INLET 2")	MODULAR HP SWIVEL GROUT-AIR (INLET 2")			58,7
J-AMHPA4C2-12	RIDUZ. TESTA A.P. MODULARE D.127 C2	MOD. SWIVEL ADAPTER D. 127 C2			18
0000000000000000					
J-12C23000	ASTA D. 127X3000 C2 Di=50	ROD. D. 127X3000 C2 I.D.=50			102
J-12C22000	ASTA D. 127X2000 C2 Di=50	ROD. D. 127X2000 C2 I.D.=50			72
J-12C21000	ASTA D. 127X1000 C2 Di=50	ROD. D. 127X1000 C2 I.D.=50			42
J-12C20702	ADATT. MONITOR D.127 C2 CON VALVOLA	D.127 C2 NOZZLES H. ADAPTER W/VAL.			18
J-1C212472-IV	MONITOR STRAJET DOPPIO UGELLO	STRAJET NOZZLES HOLDER (DOUBLE NOZZLE)			101
J-8C214900	UGELLO ARIA D.23 C2	AIR NOZZLE D.23 C2			0,05
J-8C214902	UGELLO ARIA D.24 C2	AIR NOZZLE D.24 C2			0,05
D-1395-D45-IV	UGELLO CEM. S.T.R.A. JET D. 4.5	S.T.R.A. JET GROUT NOZZLE D. 4.5			0,16
D-1395-D50-IV	UGELLO CEM. S.T.R.A. JET D. 5.0	S.T.R.A. JET GROUT NOZZLE D. 5.0			0,16
D-1395-D55-IV	UGELLO CEM. S.T.R.A. JET D. 5.5	S.T.R.A. JET GROUT NOZZLE D. 5.5			0,16
D-1395-D60-IV	UGELLO CEM. S.T.R.A. JET D. 6.0	S.T.R.A. JET GROUT NOZZLE D. 6.0			0,16
D-1395-D65-IV	UGELLO CEM. S.T.R.A. JET D. 6.5	S.T.R.A. JET GROUT NOZZLE D. 6.5			0,16
D-1395-D70-IV	UGELLO CEM. S.T.R.A. JET D. 7.0	S.T.R.A. JET GROUT NOZZLE D. 7.0			0,16
D-1395-D75-IV	UGELLO CEM. S.T.R.A. JET D. 7.5	S.T.R.A. JET GROUT NOZZLE D. 7.5			0,16
D-1395-D80-IV	UGELLO CEM. S.T.R.A. JET D. 8.0	S.T.R.A. JET GROUT NOZZLE D. 8.0			0,16
D-1395-D85-IV	UGELLO CEM. S.T.R.A. JET D. 8.5	S.T.R.A. JET GROUT NOZZLE D. 8.5			0,16
D-1395-D90-IV	UGELLO CEM. S.T.R.A. JET D. 9.0	S.T.R.A. JET GROUT NOZZLE D. 9.0			0,16
D-1395-T23	TAPPO D. 23 UGELLO ARIA A PERDERE	D. 23 REPLACEABLE PLUG			0,05
J-CU78	GUARN. UGELLO CEMENTO 7/8"	COPPER SEAL D. 7/8"			-
0000000000000000					
J-AMHPS4J2-B	KIT GUARNIZ. MODULAR SWIVEL J2 ARIA E SERVICE	SEALS KIT FOR MODULAR SWIVEL J2 AIR AND SERVICE			-
J-AMHPS4J2-A	KIT CUSCINETTI MODULAR SW. J2	MODULAR SW. J2 BEARINGS KIT			-
602-25	GUARNIZIONE 602-25 d.2,75"	SEAL 602-25 d.2,75"			-
J-12C23011	KIT GUARNIZ. ASTA D.127 C2	D.127 C2 ROD SEAL KIT			-
0000000000000000					
MR-TRIC0800	TRICONO D.8" L2 4"-1/2 A.R.	DRAG-BIT D.8" L2 4"-1/2 A.R.			-
312R412R-F/M	RID. 3"-1/2 A.R. F/M 4"-1/2 A.R.	RID. 3"-1/2 A.R. F/M 4"-1/2 A.R. ADAPTER			-
MR-TRSTE800	TRILAMA STEP D.8"	STEP DRAG BIT D.8"			-

4.10^{D.140 C2}

TECHNICAL SPECIFICATIONS

SWIVEL TYPE	INLET	FLUID TYPE	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-AMHPS4J2	2"	GROUT	45	25	150	56 / 40
	2"	AIR	33 De			3 / 2,4

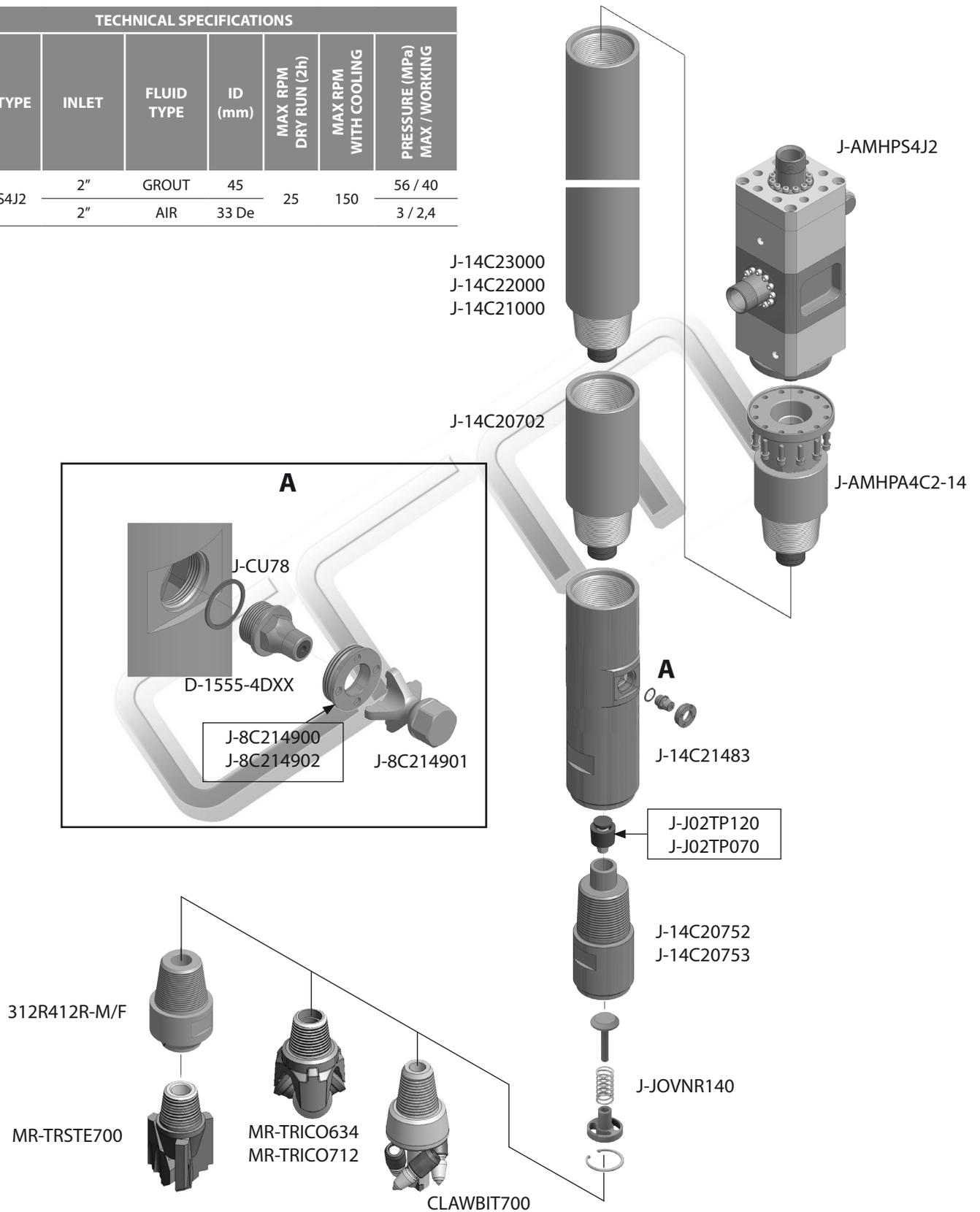


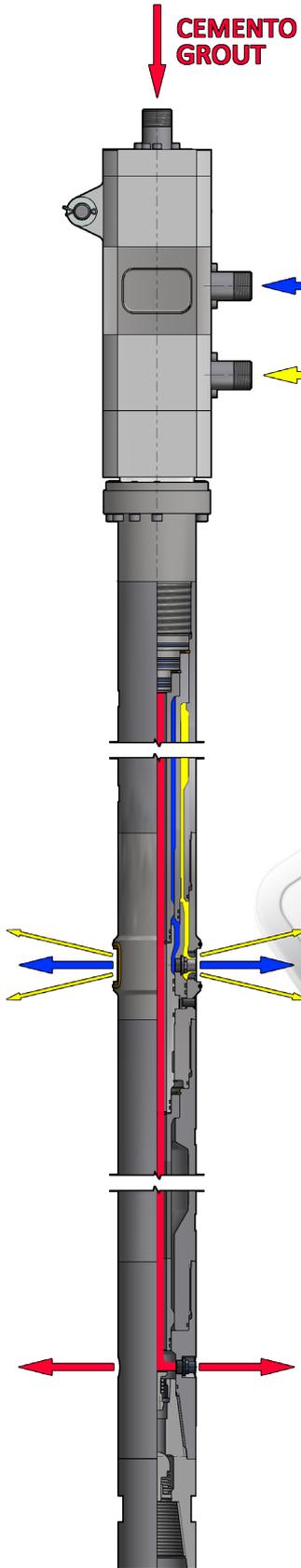
FIG. 4.10



D.140 C2 - REF. FIG. 4.10

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-AMHPS4J2	MODULAR HP SWIVEL CEMENTO-ARIA (INLET 2")	MODULAR HP SWIVEL GROUT-AIR (INLET 2")			58,7
J-AMHPA4C2-14	RIDUZIONE TESTA A.P. MODULARE D.140 C2	MOD. SWIVEL ADAPTER D. 140 C2			22
00000000000000					
J-14C23000	ASTA D. 140X3000 C2 Di=50	ROD. D. 140X3000 C2 I.D.=50			114
J-14C22000	ASTA D. 140X2000 C2 Di=50	ROD. D. 140X2000 C2 I.D.=50			81
J-14C21000	ASTA D. 140X1000 C2 Di=50	ROD. D. 140X1000 C2 I.D.=50			49
J-14C20702	ADATT. MONITOR D.140 C2 CON VALVOLA	D.140 C2 NOZZLES H. ADAPTER W/VALVE			26
J-14C20483	MONITOR D.140 C2 Di=50	C2 D.140 NOZZLES HOLDER I.D.=50			28
J-14C20752	PORTASCALPELLO D.140 C2 3"-1/2 A.R. C/VALV.	C2 D.140 3"-1/2 A.R. BIT ADAPT. WITH VALVE			25
J-14C20753	PORTASCALPELLO D.140 C2 4"-12 A.R. C/VALV.	C2 D.140-4"-1/2 A.R. BIT ADAPTER W/ VALVE			22
D-1555-4D60	UGELLO CEMENTO D.6.0-7/8	GROUT NOZZLE D. 6.0-7/8			0,2
D-1555-4D65	UGELLO CEMENTO D.6.5-7/8	GROUT NOZZLE D. 6.5-7/8			0,2
D-1555-4D70	UGELLO CEMENTO D.7.0-7/8	GROUT NOZZLE D. 7.0-7/8			0,2
D-1555-4D75	UGELLO CEMENTO D.7.5-7/8	GROUT NOZZLE D. 7.5-7/8			0,2
D-1555-4D80	UGELLO CEMENTO D.8.0-7/8	GROUT NOZZLE D. 8.0-7/8			0,2
D-1555-4D85	UGELLO CEMENTO D.8.5-7/8	GROUT NOZZLE D. 8.5-7/8			0,2
D-1555-4D90	UGELLO CEMENTO D.9.0-7/8	GROUT NOZZLE D. 9.0-7/8			0,2
J-8C214900	UGELLO ARIA D. 23 C2	AIR NOZZLE D. 23 C2			0,05
J-8C214902	UGELLO ARIA D. 24 C2	AIR NOZZLE D. 24 C2			0,05
J-CU78	GUARNIZIONE UGELLO CEMENTO 7/8" I.D. 30	COPPER SEAL D. 7/8" I.D. 30			-
J-J02TP120	VALVOLA AUTOMATICA 120BAR	CHECK VALVE 120BAR			0,5
J-J02TP070	VALVOLA AUTOMATICA 70BAR	CHECK VALVE 70BAR			0,25
J-JOVNR140	VALVOLA NON RITORNO COMPLETA D.127/140	COMPLETE NO-RETURN VALVE D.127/140			-
J-8C214901	CHIAVE UGELLO ARIA 8C214900	AIR NOZZLE REMOVING TOOL			0,15
J-8C21490T	TAPPO M. 1"-1/4 UGELLO ARIA	AIR NOZZLE PLUG			0,12
J-J33TB078	TAPPO M. 7/8" GAS HEX INC.	GROUT NOZZLE PLUG C2 7/8" GAS			0,1
00000000000000					
J-AMHPS4J2-B	KIT GUARNIZ. MODULAR SWIVEL J2 ARIA E SERVICE	SEALS KIT FOR MODULAR SWIVEL J2 AIR AND SERVICE			-
J-AMHPS4J2-A	KIT CUSCINETTI MODULAR SW. J2	MODULAR SW. J2 BEARINGS KIT			-
602-25	GUARNIZIONE 602-25 d.2,75"	SEAL 602-25 d.2,75"			-
J-14C23011	KIT GUARNIZ. ASTA D.140 C2	D.140 C2 ROD SEAL KIT			-
J-14C20703	KIT GUARNIZ. ADATT. MONITOR D.140 C2	D.140 C2 NOZZLES H. ADAPT. SEAL KIT			-
J-14C20484	KIT GUARNIZ. MONITOR D.140 C2	D.140 C2 NOZZLES HOLDER SEAL KIT			-
00000000000000					
CLAWBIT700	CLAW-BIT D. 7"-178-3"-1/2 A.R.	CLAW-BIT D. 7"-178- 3"-1/2 A.R.			-
MR-TRIC0634	TRICONO D.6"-3/4 L2- 3"-1/2 A.R.	DRAG-BIT D.6"-3/4 L2- 3"-1/2 A.R.			-
312R412R-M/F	RID. 3"-1/2 A.R. M/F 4"-1/2 A.R.	3"-1/2 A.R. M/F 4"-1/2 A.R. ADAPTER			15
MR-TRSTE700	TRILAMA STEP D.7"-3"-1/2 A.R.	STEP DRAG BIT D.7"-3"-1/2 A.R.			-
MR-TRIC0712	TRICONO D.7"-1/2 L2- 4"-1/2 A.R.	DRAG-BIT D.7"-1/2 L2- 4"-1/2 A.R.			-

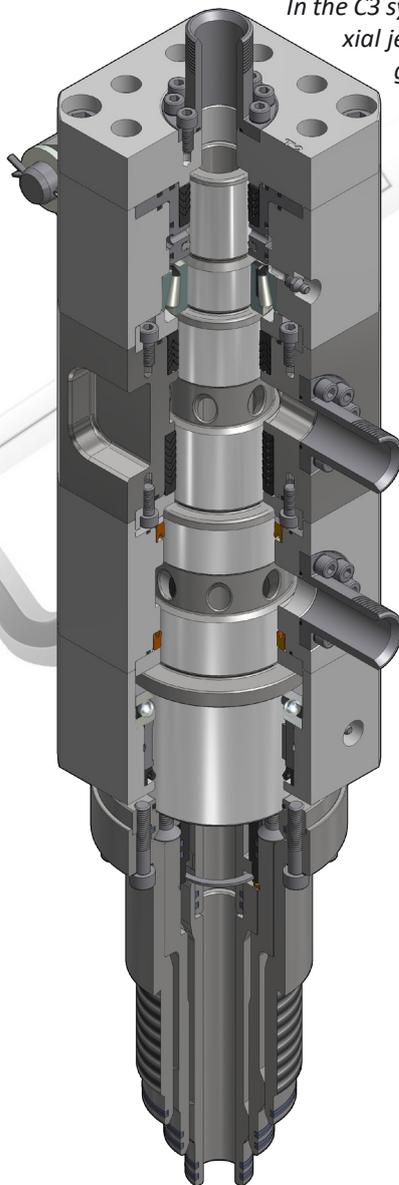
5 C3 TRIFLUIDO * TRIPLE FLUID



Nel sistema C3 un getto coassiale di acqua ed aria anticipa nella fase di risalita (fase di jetting) il getto dell'ugello del cemento.
 Questa azione preventiva migliora l'efficacia del getto di cemento aumentando considerevolmente il diametro raggiungibile della colonna di terreno consolidato.

La testa di adduzione è del tipo monoblocco con tre ingressi. Il corpo è costruito in lega leggera di alta resistenza. Le parti interne, in acciaio bonificato, lavorano su cuscinetti di alta qualità.

Le aste sono dimensionate per garantire alte portate e pressioni. Sono costituite di tre elementi coassiali, tutti con saldature a frizione e con manicotti in acciaio bonificato di alta resistenza. Le guarnizioni usate sono in poliuretano resistente ad una temperatura di -50°C.



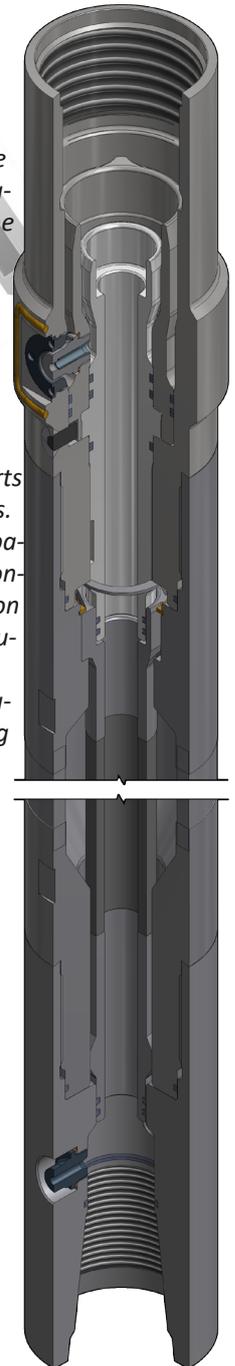
In the C3 system, during the jetting step, a coaxial jet of water and air comes before the grout jet. The preventive of the coaxial jet of water and air makes the grout jet more efficient in breaking up and mixing the soil with the result of having larger columns of consolidated soil.

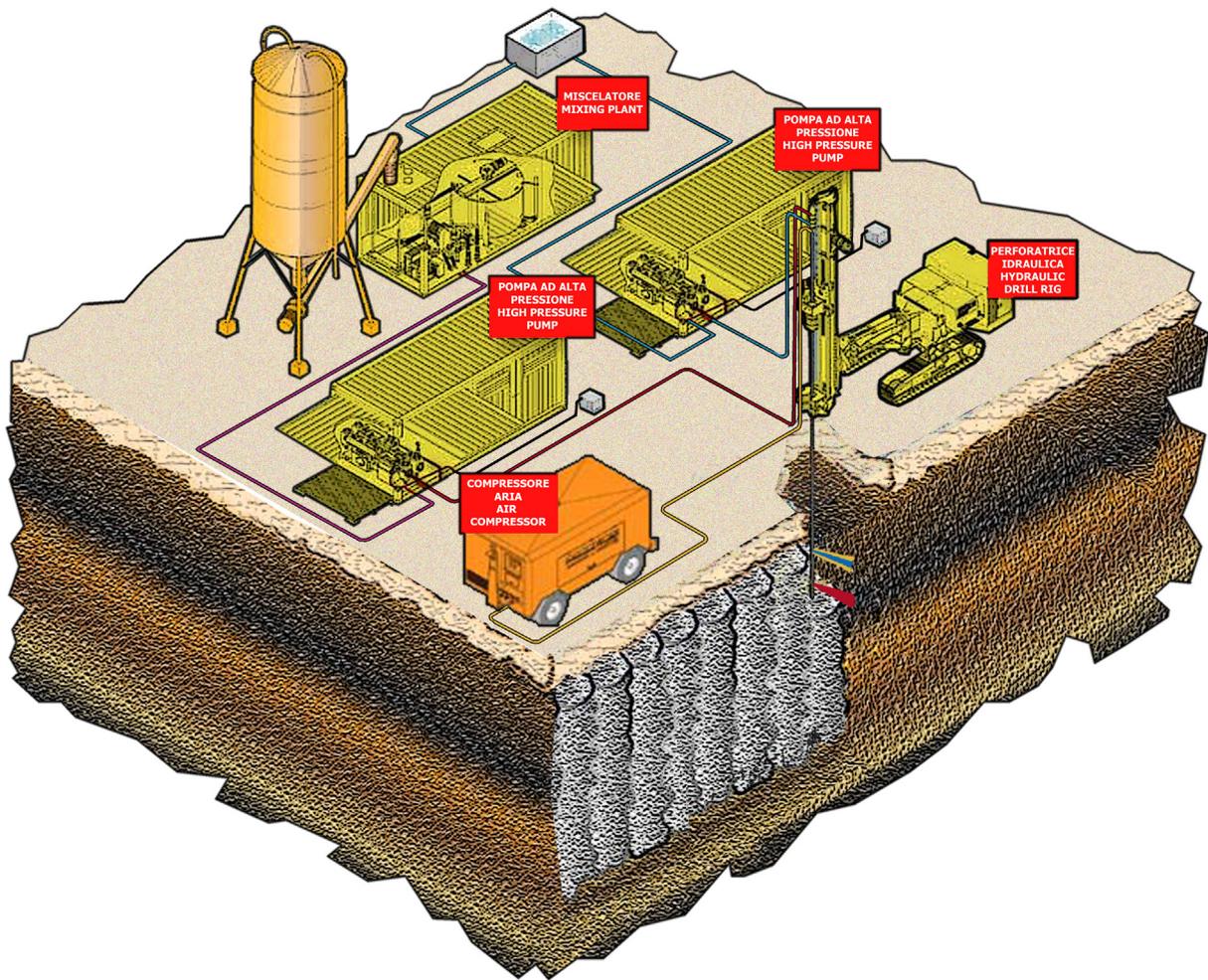
The swivel is enbloc with three inlets. It is manufactured in heavy duty aluminium alloy.

Its high strength steel inner parts work on high quality roller bearings.

The rods are designed for high capacities and pressures. Each rods consists of three coaxial rods friction welded with tool joints manufactured in high strength steel.

The seals used are made in poliurethane capable of an operating temperature of -50°C.





SCHEMA IMPIANTO JET-GROUTING TRIFLUIDO
 TRIPLE FLUID JET-GROUTING PLANT

5.1 D.90 K3

TECHNICAL SPECIFICATIONS						
SWIVEL TYPE	INLET	FLUID TYPE	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-WMHPSWT3	1"-1/4	GROUT	30	30	105	56 / 40
		WATER	31 De			56 / 45
		AIR	36 De			3 / 2,4

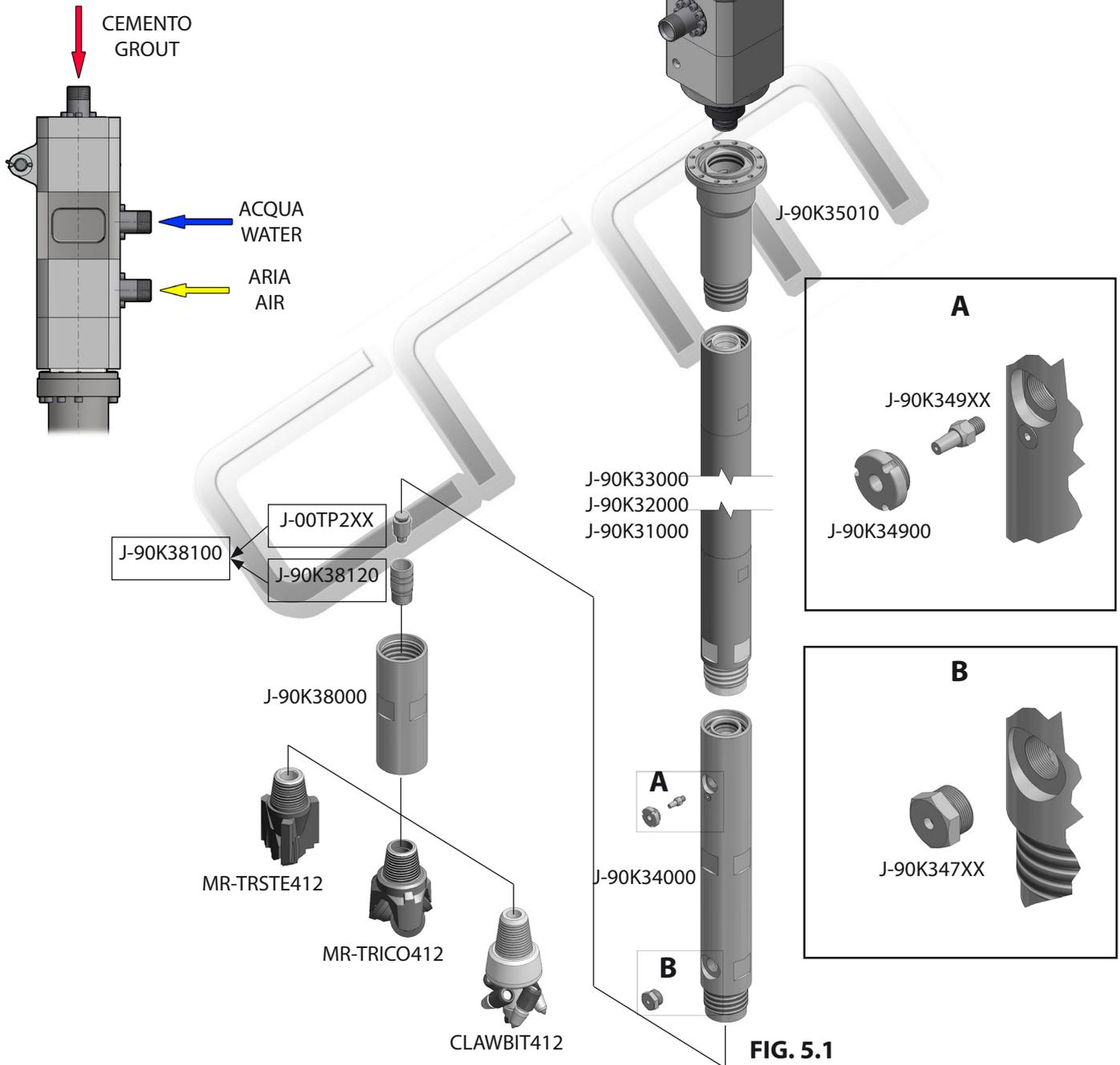


FIG. 5.1

5.2^{D.114 C3}

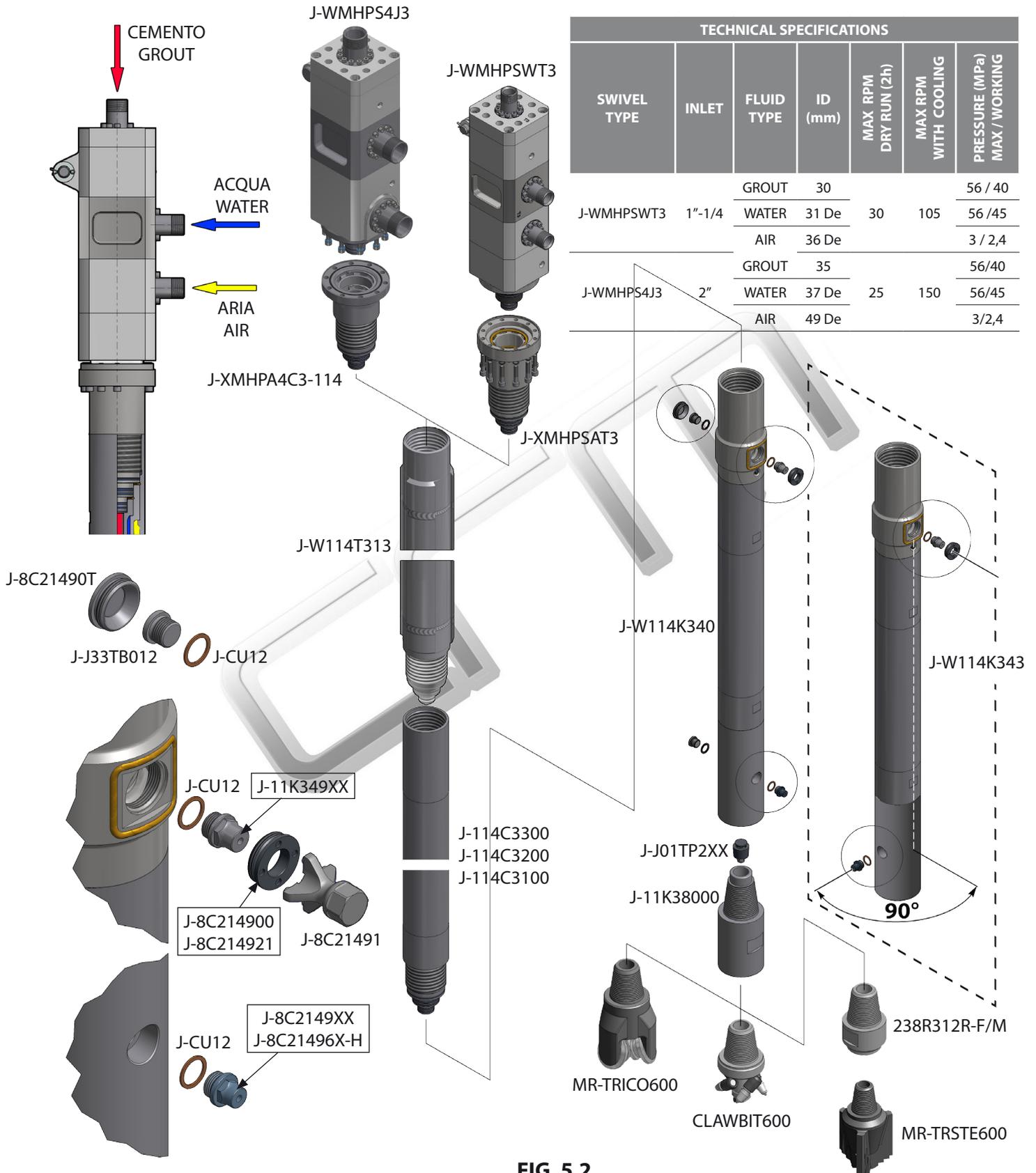


FIG. 5.2

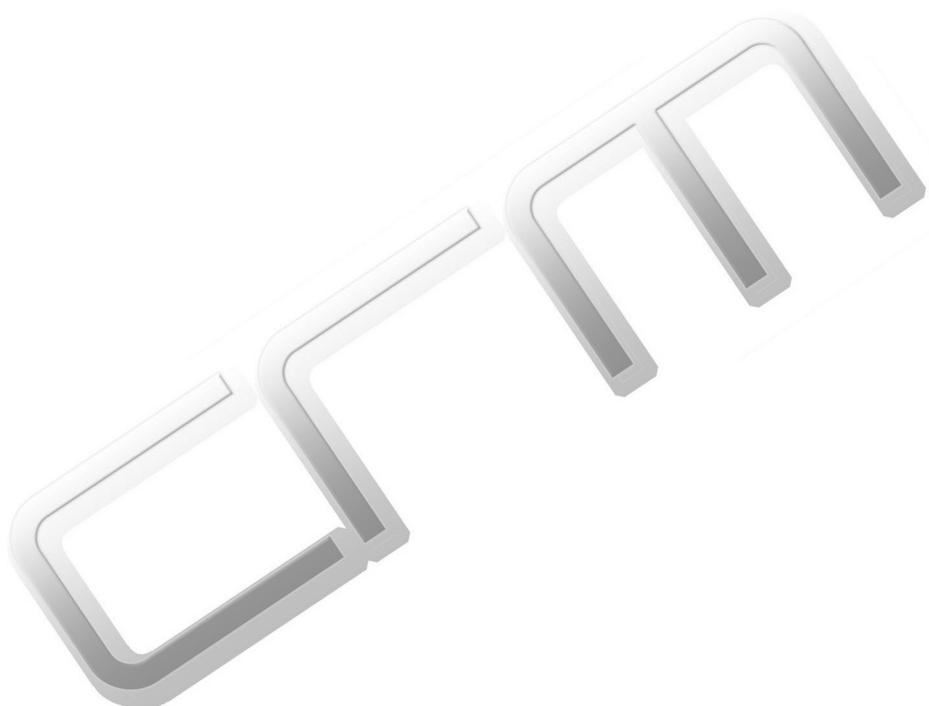


D.114 C3 - REF. FIG. 5.2

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-WMHPSWT3	TESTA D. 114 T3	H.P. SWIVEL D. 114 T3 JET			58
J-XMHPSAT3	ADATTATORE ASTA-TESTA D.114 T3-C3	ROD-SWIVEL D. 114 T3-C3 ADAPTER			13
J-WMHPS4J3	MODULAR HP SWIVEL C3 (INLET 2")	MODULAR HP SWIVEL C3 (INLET 2")			69,4
J-XMHPA4C3-114	ADAPTER MOD.SW. J3 - 114 C3 ROD	ADAPTER MOD.SW. J3-114 C3 ROD			9
J-W114T313	ASTA D.114X1500 T3 3 ALETTE MANDRINO PASS. MASSIMA COPPIA	ROD D.114X1500 T3 3 WINGS HOLL. CLAMP MAX TORQUE			60
J-114C3300	ASTA D. 114X3000 C3	ROD D. 114X3000 C3 JET			135
J-114C3200	ASTA D. 114X2000 C3	ROD D. 114X2000 C3 JET			92
J-114C3100	ASTA D. 114X1000 C3	ROD D. 114X1000 C3 JET			49
J-W114K340	MONITOR D. 114 T3-C3 UGELLI A 180°	NOZZLE HOLDER D. 114 T3-C3 JET 2x180°			67
J-W114K343	MONITOR D. 114 T3-C3 UGELLI A 90°	NOZZLE HOLDER D. 114 T3-C3 JET 2x90°			67
J-11K38000	PORTASCALP. D.114 K3 CON VALVOLA NO-RET.	D.114 K3 BIT ADAPT. WITH NO-RET. VALVE			12,5
J-J01TP212	VALVOLA AUT. JET 120BAR	AUT. JET VALVE 120BAR			0,25
J-J01TP270	VALVOLA AUT. JET 70BAR	AUT. JET VALVE 70BAR			0,2
J-8C214900	UGELLO ARIA D. 23 D. 114 K3	AIR NOZZLE D. 23 D. 114 K3			0,1
J-8C214921	UGELLO ARIA D. 21 D. 114 K3	AIR NOZZLE D. 21 D. 114 K3			0,1
J-11K34935	UGELLO ACQUA D. 3.5 D. 114 K3	WATER NOZZLE D. 3.5 D. 114 K3			0,1
J-11K34940	UGELLO ACQUA D. 4.0 D. 114 K3	WATER NOZZLE D. 4.0 D. 114 K3			0,1
J-11K34945	UGELLO ACQUA D. 4.5 D. 114 K3	WATER NOZZLE D. 4.5 D. 114 K3			0,1
J-11K34950	UGELLO ACQUA D. 5.0 D. 114 K3	WATER NOZZLE D. 5.0 D. 114 K3			0,1
J-11K34955	UGELLO ACQUA D. 5.5 D. 114 K3	WATER NOZZLE D. 5.5 D. 114 K3			0,1
J-11K34960	UGELLO ACQUA D. 6.0 D. 114 K3	WATER NOZZLE D. 6.0 D. 114 K3			0,1
J-CU12	GUARN. UGELLO CEMENTO 1/2"	COPPER SEAL D. 1/2"			-
J-8C214901	CHIAVE UGELLO ARIA 8C214900	AIR NOZZLE REMOVING TOOL			0,15
J-8C21490T	TAPPO M. 1"-1/4 UGELLO ARIA	AIR NOZZLE PLUG			0,12
J-J33TB012	TAPPO M. 1/2" GAS HEX INC.	GROUT NOZZLE PLUG C2			0,1
J-8C214940	UGELLO CEM. D. 4.0 C2	GROUT NOZZLE D. 4.0			0,1
J-8C214945	UGELLO CEM. D. 4.5 C2	GROUT NOZZLE D. 4.5			0,1
J-8C214950	UGELLO CEM. D. 5.0 C2	GROUT NOZZLE D. 5.0			0,1
J-8C214955	UGELLO CEM. D. 5.5 C2	GROUT NOZZLE D. 5.5			0,1
J-8C214960-H	UGELLO CEM. D. 6.0 C2 HEAVY DUTY	GROUT NOZZLE D. 6.0 HEAVY DUTY			0,12
J-8C214963-H	UGELLO CEM. D. 6.3 C2 HEAVY DUTY	GROUT NOZZLE D. 6.3 HEAVY DUTY			0,12
J-8C214965-H	UGELLO CEM. D. 6.5 C2 HEAVY DUTY	GROUT NOZZLE D. 6.5 HEAVY DUTY			0,12
J-8C214967-H	UGELLO CEM. D. 6.7 C2 HEAVY DUTY	GROUT NOZZLE D. 6.7 HEAVY DUTY			0,12
J-8C214970-H	UGELLO CEM. D. 7.0 C2 HEAVY DUTY	GROUT NOZZLE D. 7.0 HEAVY DUTY			0,12
J-8C214975-H	UGELLO CEM. D. 7.5 C2 HEAVY DUTY	GROUT NOZZLE D. 7.5 HEAVY DUTY			0,12
J-8C214980-H	UGELLO CEM. D. 8.0 C2 HEAVY DUTY	GROUT NOZZLE D. 8.0 HEAVY DUTY			0,12

D.114 C3 - REF. FIG. 5.2

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-WMHPSWT3-A	KIT RICAMBI TESTA T3 D.114	T3 SWIVEL SPARE PARTS			-
J-WMHPSWT3-B	KIT GUARN. TESTA D. 114 T3	SWIVEL SEAL KIT D. 114 T3			-
J-W114K341	KIT RICAMBI MONITOR D.114 T3	D.114 T3 NOZZLES HOLDER SPARE PARTS			-
J-W114K342	KIT GUARN. MONITOR D. 114 T3	D.114 T3 NOZZLES HOLDER SEAL KIT			-
J-W114T331	KIT GUARN. ASTA D. 114 T3	SEAL KIT ROD D. 114 T3			-
CLAWBIT600	CLAW-BIT D. 152 (6") 3"-1/2 AR M.	CLAW-BIT D. 152 (6") 3"-1/2 AR M.			12
MR-TRIC0600	TRICONO D. 6 " L2	ROCK BIT D. 6" L2			9
238R312R-F/M	RID. 2"-3/8 AR-3"-1/2 AR F/M	ADAPTER 2"-3/8 AR BOX/PIN 3"-1/2 AR			6
MR-TRSTE600	TRILAMA STEP D. 6" 2"-3/8 AR	DRAG BIT D. 6" 2"-3/8 AR PIN			5



5.3 D.127 C3

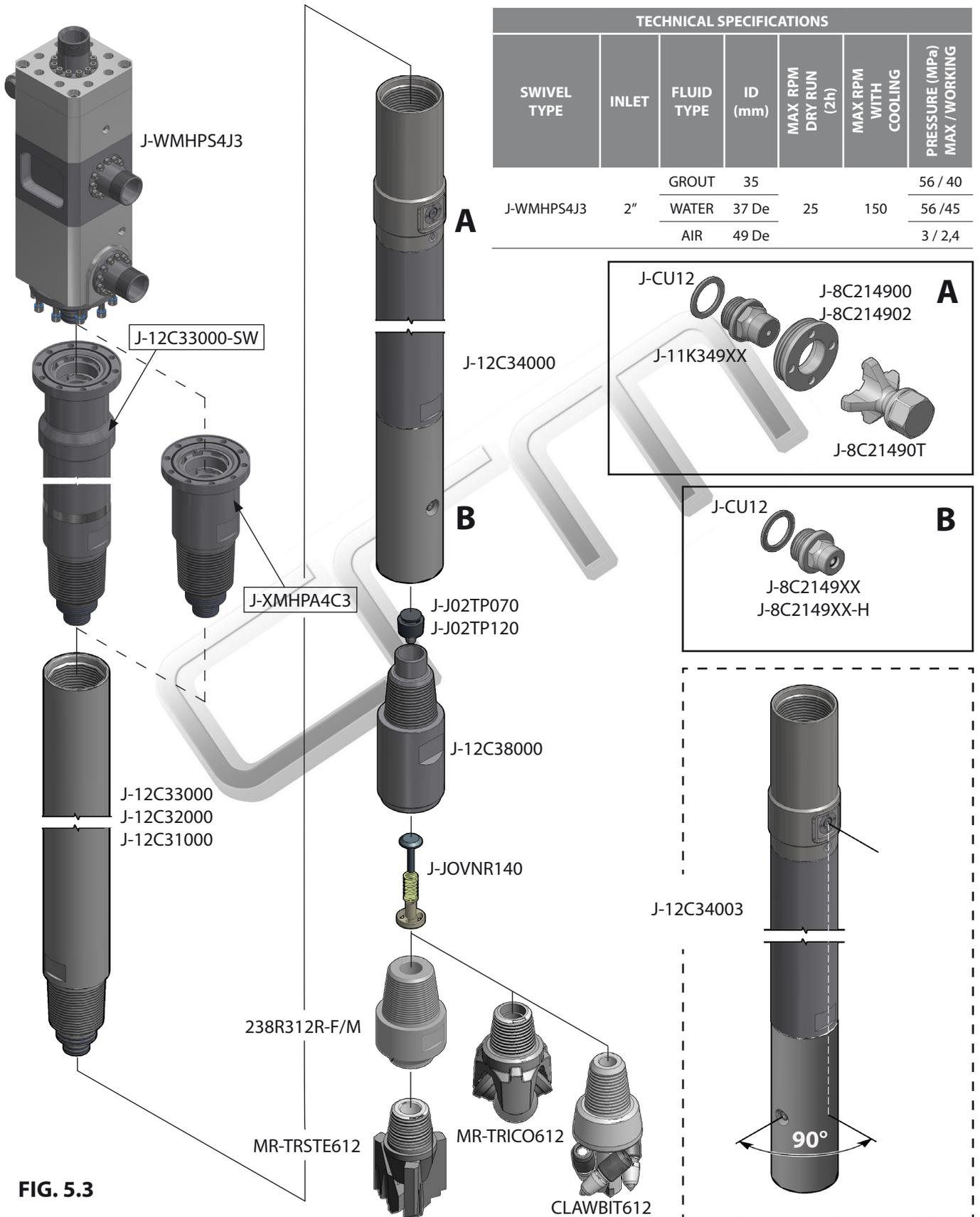


FIG. 5.3



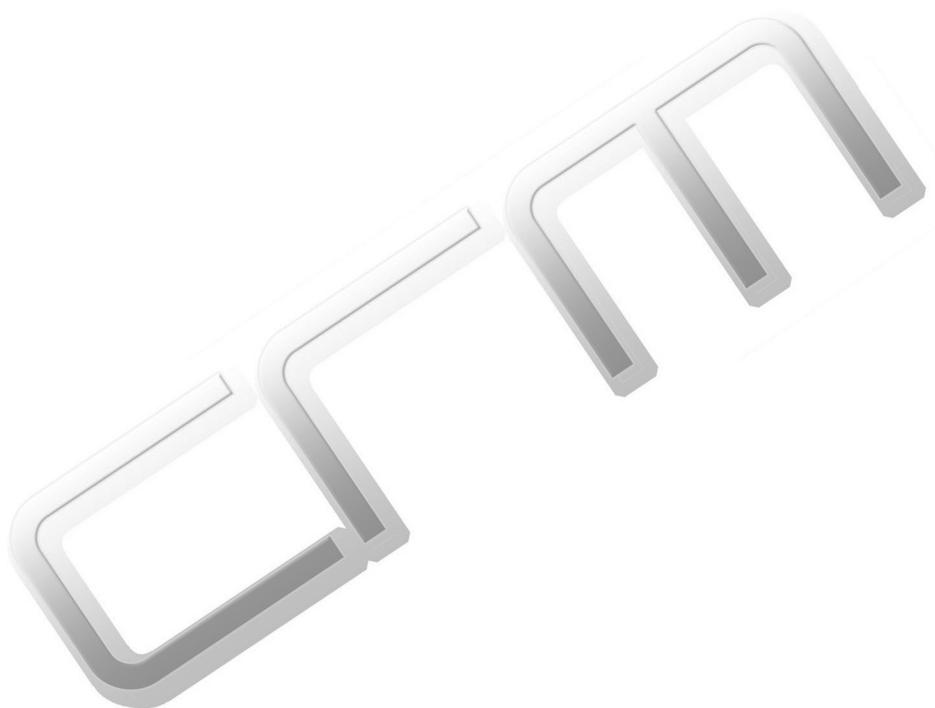
D.127 C3 - REF. FIG. 5.3

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-WMHPS4J3	MODULAR HP SWIVEL C3 (INLET 2")	MODULAR HP SWIVEL C3 (INLET 2")			69,4
J-XMHPA4C3	ADAPTER MOD.SW. 127 C3	ADAPTER MOD.SW. 127 C3			9
J-12C33000-SW	ASTA D.127X3000 C3 JETTING CON FLANGIA	FLANGED ROD D.127X3000 C3 JET			137
J-12C33000	ASTA D.127X3000 C3 JETTING FRIZIONATA	FRICTIONED ROD D.127X3000 C3 JET			111
J-12C32000	ASTA D.127X2000 C3 JETTING FRIZIONATA	FRICTIONED ROD D.127X2000 C3 JET			76,5
J-12C31000	ASTA D.127X1000 C3 JETTING FRIZIONATA	FRICTIONED ROD D.127X1000 C3 JET			43
J-12C34000	MONITOR D.127 C3 JETTING 2 UGELLI 180°	NOZZLE HOLDER D.127 C3 JETTING 2x180°			99
J-12C34003	MONITOR D.127 C3 JETTING 2 UGELLI 90°	NOZZLE HOLDER D.127 C3 JETTING 2x90°			99
J-12C38000	PORTASCALP D.127 C3 C/V NO RET VALVE	BIT ADAPTER D.127 C3 W. NO RET. VALVE			19,4
J-JOVNR140	VALVOLA NON RITORNO D.127/140	NO-RETURN VALVE D.127/140			0,4
J-8C214900	UGELLO ARIA D.23	AIR NOZZLE D.23			0,1
J-8C214902	UGELLO ARIA D.24	AIR NOZZLE D.24			0,1
J-11K34935	UGELLO ACQUA D.3.5 K3	WATER NOZZLE D.3.5 K3			0,1
J-11K34940	UGELLO ACQUA D.4.0 K3	WATER NOZZLE D.4.0 K3			0,1
J-11K34945	UGELLO ACQUA D.4.5 K3	WATER NOZZLE D.4.5 K3			0,1
J-11K34950	UGELLO ACQUA D.5.0 K3	WATER NOZZLE D.5.0 K3			0,1
J-11K34955	UGELLO ACQUA D.5.5 K3	WATER NOZZLE D.5.5 K3			0,1
J-11K34960	UGELLO ACQUA D.6.0 K3	WATER NOZZLE D.6.0 K3			0,1
J-11K34963	UGELLO ACQUA D.6.3 K3	WATER NOZZLE D.6.3 K3			0,1
J-11K34965	UGELLO ACQUA D.6.5 K3	WATER NOZZLE D.6.5 K3			0,1
J-11K34967	UGELLO ACQUA D.6.7 K3	WATER NOZZLE D.6.7 K3			0,1
J-11K34970	UGELLO ACQUA D.7.0 K3	WATER NOZZLE D.7.0 K3			0,1
J-CU12	GUARNIZIONE RAME 1/2"	COPPER SEAL D.1/2"			-
J-8C214940	UGELLO CEM. D.4.0 C2	GROUT NOZZLE D.4.0 C2			0,1
J-8C214945	UGELLO CEM. D.4.5 C2	GROUT NOZZLE D.4.5 C2			0,1
J-8C214950	UGELLO CEM. D.5.0 C2	GROUT NOZZLE D.5.0 C2			0,1
J-8C214955	UGELLO CEM. D.5.5 C2	GROUT NOZZLE D.5.5 C2			0,1
J-8C214960-H	UGELLO CEM. D.6.0 C2 HEAVY DUTY	GROUT NOZZLE D.6.0 C2 HEAVY DUTY			0,12
J-8C214963-H	UGELLO CEM. D.6.3 C2 HEAVY-DUTY	GROUT NOZZLE D.6.3 C2 HEAVY-DUTY			0,12
J-8C214965-H	UGELLO CEM. D.6.5 C2 HEAVY-DUTY	GROUT NOZZLE D.6.5 C2 HEAVY-DUTY			0,12
J-8C214967-H	UGELLO CEM. D.6.7 C2 HEAVY-DUTY	GROUT NOZZLE D.6.7 C2 HEAVY-DUTY			0,12
J-8C214970-H	UGELLO CEM. D.7.0 C2 HEAVY-DUTY	GROUT NOZZLE D.7.0 C2 HEAVY-DUTY			0,12
J-8C214975-H	UGELLO CEM. D.7.5 C2 HEAVY-DUTY	GROUT NOZZLE D.7.5 C2 HEAVY-DUTY			0,12
J-8C214980-H	UGELLO CEM. D.8.0 C2 HEAVY-DUTY	GROUT NOZZLE D.8.0 C2 HEAVY-DUTY			0,12
J-8C214901	CHIAVE UGELLO ARIA 8C214900	AIR NOZZLE 8C214900 REMOVING TOOL			0,15
J-8C21490T	TAPPO M 1"1/4 UGELLO ARIA	1"1/4 AIR NOZZLE MALE PLUG			0,12
J-J33TB012	TAPPO M. 1/2" GAS EX INC	1/2" GAS MALE PLUG HEX SOCKET			0,1
J-J02TP070	VALVOLA AUTOM. JET 70 BAR (D.127-D.140)	JET AUTOM. VALVE 70 BAR (D.127-D.140)			0,29
J-J02TP120	VALVOLA AUTOM. JETT 120 BAR (D.127-140)	JET AUTOM. VALVE 120 BAR (D.127-D.140)			0,3
J-WMHPS4J3-A	KIT CUSCINETTI MODULAR SW. J3	J3 HP SWIVEL BEARINGS KIT			-
J-WMHPS4J3-B	KIT GUARNIZ. SWIVEL J3 HP WATER, AIR AND SERVICE	SEALS KIT SWIVEL J3 HP WATER, AIR AND SERVICE			-



D.127 C3 - REF. FIG. 5.3

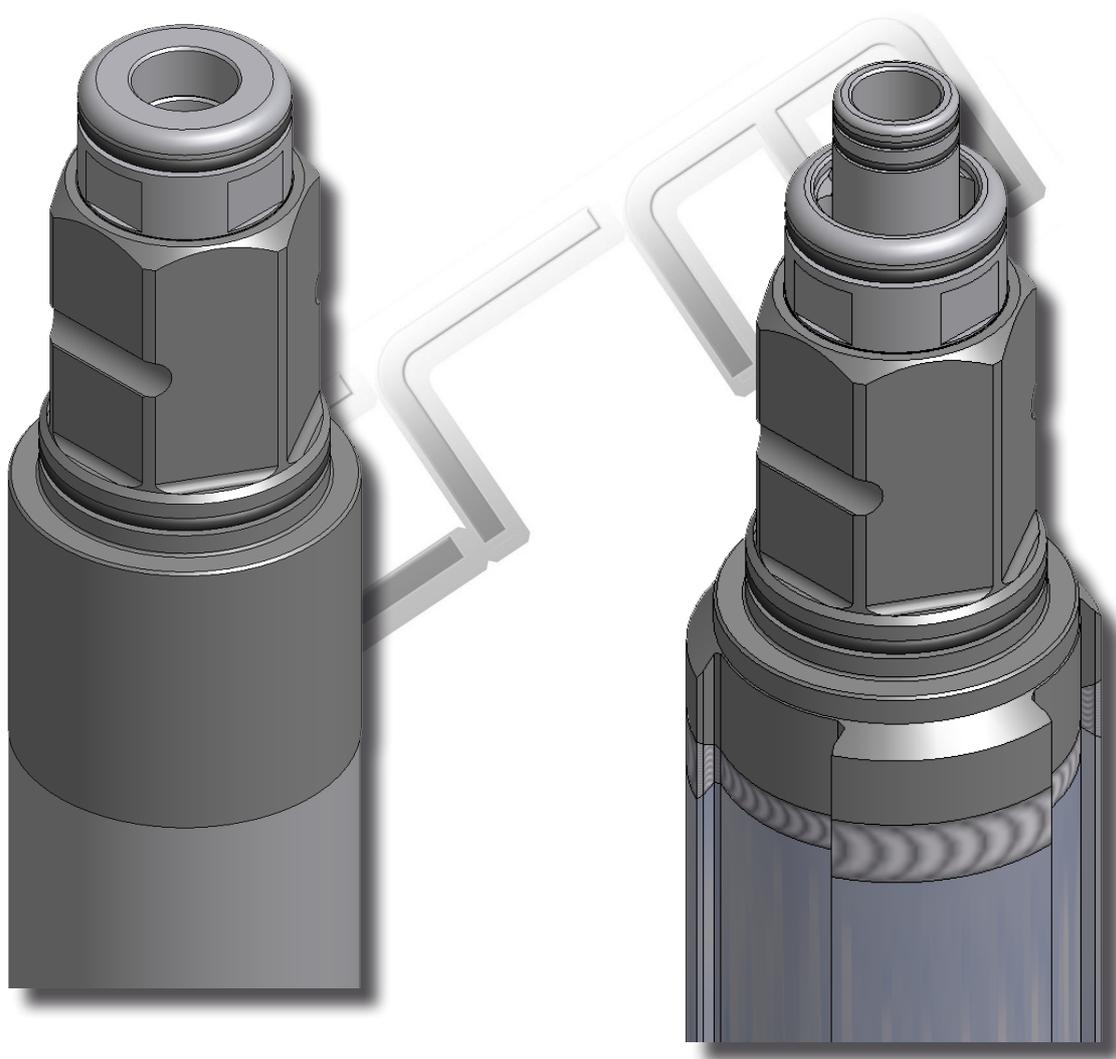
CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
602-25	GUARNIZIONE 602-25 d.2,75"	SEAL 602-25 d.2,75"			
CLAWBIT612	CLAW-BIT D.6"1/2-165 3" 1/2 ARM	CLAW-BIT D.6"1/2-165 3" 1/2 ARM			-
MR-TRIC0612	TRICONO D.6"1/2 L2 3"1/2 AR IADC 231	ROCK BIT D.6"1/2 L2 3"1/2 AR IADC 231			-
238R312R-F/M	RID. 2"3/8 A.R. F/M 3"1/2 A.R.	ADAPTER 2"3/8 A.R. F/M 3"1/2 A.R.			6
MR-TRSTE612	TRILAMA STEP D.6"1/2 2"3/8 AR M	STEP DRAG BIT D.6"1/2 2"3/8 AR M			-



6 JETTING ESAGONALE * HEXAGONAL JETTING

Attrezzatura progettata per la realizzazione di pannelli jet grouting e per la sigillatura di diaframmi. La forma esagonale del manicotto rende possibile la manovra delle aste in entrambi i sensi di rotazione. Esiste sia la versione monofluido che bifluido.

*Equipment designed for jet grouting panel sealing.
The hexagonal shape of coupling gives the possibility of turning the rods in both rotation directions.
Single-fluid and double-fluid's versions are available.*



6.1 JET HEX 80

TECHNICAL SPECIFICATIONS							
SWIVEL							ROD
SWIVEL CODE	INLET	FLUID TYPE	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING	MAX TORQUE (KNm)
J-8C2TS700	1"-1/2	GROUT	35	30	105	56 / 40	25

Nota: attrezzatura per pannelli jet grouting, per sigillatura diaframmi
 Note: equipment for jet grouting panel sealing

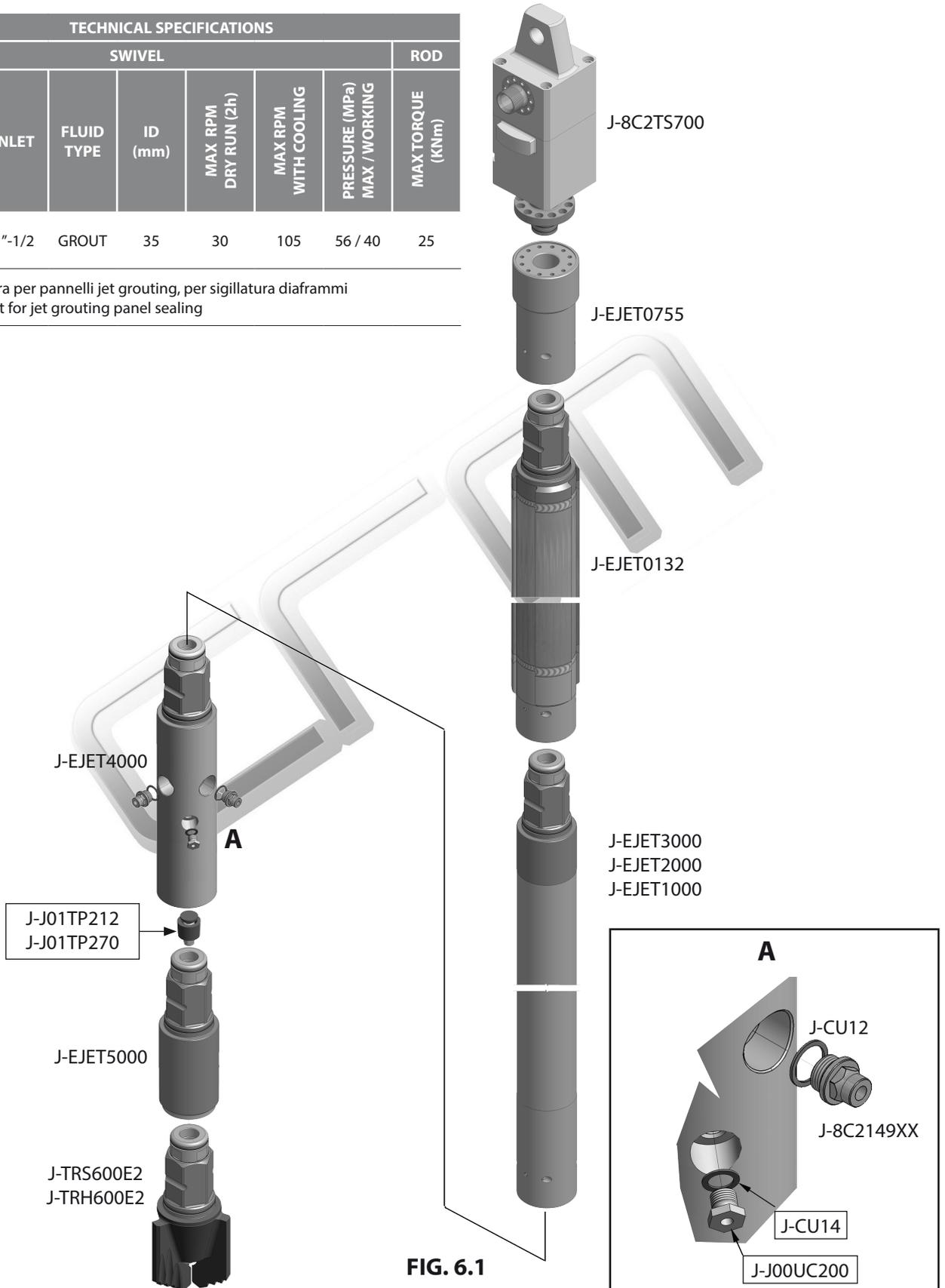


FIG. 6.1



JET HEX 80 - REF. FIG. 6.1

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-8C2TS700	TESTA A.P. 700L/MIN- 560 BAR	H.P. SWIVEL 700L/MIN-560BAR			20
J-EJET0755	RID. 8C2TS700-ASTA JET HEX 80	8C2TS700-JET HEX80 ADAPTER			14
J-EJET0132	ASTA D.114X1000 D.132 JET HEX80 MANDRINO PASS. MASSIMA COPPIA	D.114x1000 D.132 JET HEX80 ROD HOLLOW CLAMP MAX TORQUE			61
J-EJET3000	ASTA D.114X3000 JET HEX 80	D.114X3000 JET HEX 80 ROD			86,6
J-EJET2000	ASTA D.114X2000 JET HEX 80	D.114X2000 JET HEX 80 ROD			62
J-EJET1000	ASTA D.114X1000 JET HEX 80	D.114X1000 JET HEX 80 ROD			37,3
J-EJET4000	MONITOR JET HEX 80 150°	JET HEX80 150° NOZZLES HOLDER			38
J-EJET5000	PORTASCALPELLO JET HEX 80	JET HEX80 BIT ADAPTER			14
◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇					
J-J01TP212	VALVOLA AUT. JET 120BAR	AUT. JET VALVE 120BAR			0,25
J-J01TP270	VALVOLA AUT. JET 70BAR	AUT. JET VALVE 70BAR			0,2
J-8C214920	UGELLO CEM. D.2.0 C2	GROUT NOZZLE D. 2.0 C2			0,1
J-8C214925	UGELLO CEM. D.2.5 C2	GROUT NOZZLE D. 2.5 C2			0,1
J-8C214930	UGELLO CEM. D.3.0 C2	GROUT NOZZLE D. 3.0 C2			0,1
J-8C214935	UGELLO CEM. D.3.5 C2	GROUT NOZZLE D. 3.5 C2			0,1
J-8C214940	UGELLO CEM. D.4.0 C2	GROUT NOZZLE D. 4.0 C2			0,1
J-8C214945	UGELLO CEM. D.4.5 C2	GROUT NOZZLE D. 4.5 C2			0,1
J-8C214950	UGELLO CEM. D.5.0 C2	GROUT NOZZLE D. 5.0 C2			0,1
J-8C214955	UGELLO CEM. D.5.5 C2	GROUT NOZZLE D. 5.5 C2			0,1
J-8C214960-H	UGELLO CEM. D.6.0 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.0 C2 HEAVY-DUTY			0,12
J-8C214963-H	UGELLO CEM. D.6.3 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.3 C2 HEAVY-DUTY			0,12
J-8C214965-H	UGELLO CEM. D.6.5 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.5 C2 HEAVY DUTY			0,12
J-8C214967-H	UGELLO CEM. D.6.7 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.7 C2 HEAVY-DUTY			0,12
J-8C214970-H	UGELLO CEM. D.7.0 C2 HEAVY-DUTY	GROUT NOZZLE D. 7.0 C2 HEAVY DUTY			0,12
J-8C214980-H	UGELLO CEM. D.8.0 C2 HEAVY-DUTY	GROUT NOZZLE D. 8.0 C2 HEAVY DUTY			0,12
J-CU12	GUARNIZIONE RAME 1/2"	COPPER SEAL D. 1/2"			-
J-J33TB012	TAPPO M. 1/2" GAS EX INC	GROUT NOZZLE PLUG C2			0,1
J-J00UC200	UGELLO JET D. 2.0	JET NOZZLE D. 2.0			0,02
J-CU14	GUARN. UGELLO 1/4"	NOZZLE COPPER SEAL D. 1/4"			-
◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇					
J-EJET3011	KIT GUARNIZ. ASTA JET HEX 80	JET HEX 80 ROD SEALS KIT			-
J-8C2TS701	KIT RICAMBI TESTA A.P.	SWIVEL SPARE KIT			-
J-8C2TS702	KIT GUARNIZIONI TESTA A.P.	SWIVEL SEAL KIT			-
J-8C2TS702-A	GUARN. CENTRALI TESTA 8C2TS700	MAIN SEAL KIT H.P. SWIVEL			-
J-8C2TS702-H	GUARN.CENTRALI ALTA VELOCITA' H.P.	H.P. SWIVEL HIGH SPEED MIDDLE SEALS			-
◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇					
J-TRS600E2	TRILAMA STEP D.6"-152 HEX80	STEP DRAG BIT D.6"-152 HEX 80			8
J-TRH600E2	TRILAMA CHEVRON 6"-152 HEX80	CHEVRON DRAG BIT 6"-152 HEX 80			10

6.2 C2 HEX 80

TECHNICAL SPECIFICATIONS							
SWIVEL							ROD
SWIVEL CODE	INLET	FLUID TYPE	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING	MAX TORQUE (KNm)
J-AMHPSWD2	1"-1/2	GROUT	35	30	105	56 / 40	25
	1"-1/2	AIR	22 De			3 / 2,4	

Nota: attrezzatura per pannelli jet grouting, per sigillatura diaframmi
 Note: equipment for jet grouting panel sealing

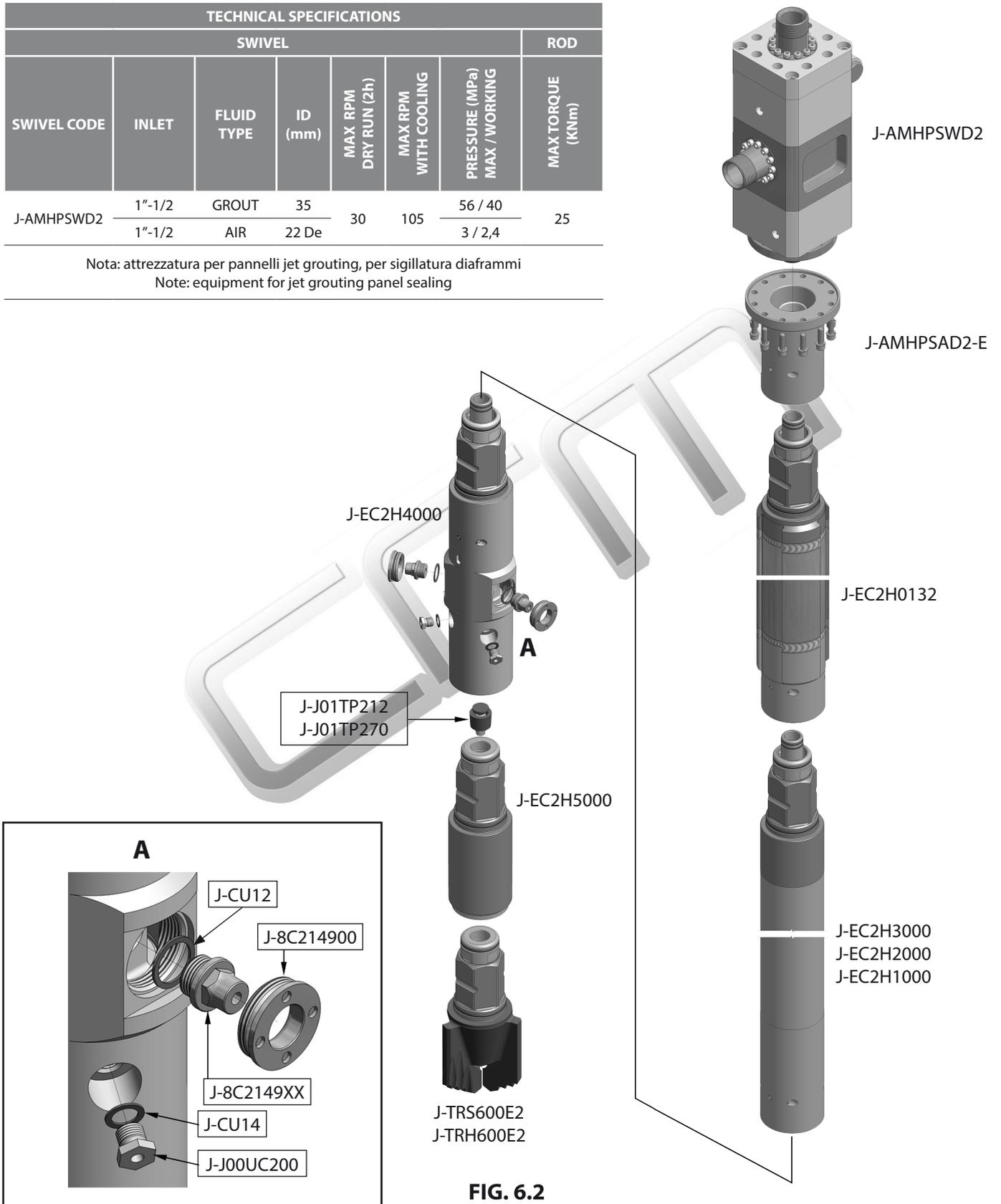


FIG. 6.2



C2 HEX 80 - REF. FIG. 6.2

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-AMHPSWD2	MODULAR HP SWIVEL CEMENTO-ARIA (INLET 1"-1/2)	MODULAR HP SWIVEL GROUT-AIR (INLET 1"-1/2)			48
J-AMHPSAD2-E	ADATTATORE TESTA A.P. MODULARE D2-ASTA HEX 80	ADAPTER MOD. SWIVEL D2 -ROD HEX 80			15
00000000000000					
J-EC2H0132	ASTA D.114X1000 D.132 C2H HEX80 MANDRINO PASS. MASSIMA COPPIA	D.114x1000 D.132 C2H HEX80 ROD HOLLOW CLAMP MAX TORQUE			66
J-EC2H3000	ASTA D.114X3000 C2H HEX 80	D.114X3000 C2H HEX 80 ROD			82,6
J-EC2H2000	ASTA D.114X2000 C2H HEX 80	D.114X2000 C2H HEX 80 ROD			58
J-EC2H1000	ASTA D.114X1000 C2H HEX 80	D.114X1000 C2H HEX 80 ROD			33,4
J-EC2H4000	MONITOR C2H HEX 80 150°	C2H HEX80 150° NOZZLES HOLDER			38
J-EC2H5000	PORTASCALPELLO C2H HEX 80	C2H HEX80 BIT ADAPTER			14
00000000000000					
J-8C214940	UGELLO CEM. D.4.0 C2	GROUT NOZZLE D. 4.0 C2			0,1
J-8C214945	UGELLO CEM. D.4.5 C2	GROUT NOZZLE D. 4.5 C2			0,1
J-8C214950	UGELLO CEM. D.5.0 C2	GROUT NOZZLE D. 5.0 C2			0,1
J-8C214955	UGELLO CEM. D.5.5 C2	GROUT NOZZLE D. 5.5 C2			0,1
J-8C214960-H	UGELLO CEM. D.6.0 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.0 C2 HEAVY-DUTY			0,12
J-8C214963-H	UGELLO CEM. D.6.3 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.3 C2 HEAVY-DUTY			0,12
J-8C214965-H	UGELLO CEM. D.6.5 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.5 C2 HEAVY DUTY			0,12
J-8C214967-H	UGELLO CEM. D.6.7 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.7 C2 HEAVY-DUTY			0,12
J-8C214970-H	UGELLO CEM. D.7.0 C2 HEAVY-DUTY	GROUT NOZZLE D. 7.0 C2 HEAVY DUTY			0,12
J-8C214975-H	UGELLO CEM. D.7.5 C2 HEAVY-DUTY	GROUT NOZZLE D. 7.5 C2 HEAVY DUTY			0,12
J-8C214980-H	UGELLO CEM. D.8.0 C2 HEAVY-DUTY	GROUT NOZZLE D. 8.0 C2 HEAVY DUTY			0,12
J-8C214900	UGELLO ARIA D. 23 C2	AIR NOZZLE D. 23 C2			0,1
J-CU12	GUARNIZIONE RAME 1/2"	COPPER SEAL D. 1/2"			-
J-J33TB012	TAPPO M. 1/2" GAS EX INC	GROUT NOZZLE PLUG C2			0,1
J-J00UC200	UGELLO JET D. 2.0	JET NOZZLE D. 2.0			0,02
J-CU14	GUARN. UGELLO 1/4"	NOZZLE COPPER SEAL D. 1/4"			-
J-J01TP212	VALVOLA AUT. JET 120BAR	AUT. JET VALVE 120BAR			0,25
J-J01TP270	VALVOLA AUT. JET 70BAR	AUT. JET VALVE 70BAR			0,2
00000000000000					
J-EC2H3011	KIT GUARNIZ. ASTA C2H HEX 80	C2H HEX 80 ROD SEALS KIT			-
J-WMHPSWD2-A	KIT RICAMBI TESTA MODULAR D2	D2 MODULAR HP SWIVEL SPARE KIT			-
J-WMHPSWD2-B	KIT GUARNIZ. TESTA MODULAR D2	D2 MODULAR HP SWIVEL SEAL KIT			-
00000000000000					
J-TRS600E2	TRILAMA STEP D.6"-152 HEX80	STEP DRAG BIT D.6"-152 HEX 80			8
J-TRH600E2	TRILAMA CHEVRON 6"-152 HEX80	CHEVRON DRAG BIT 6"-152 HEX 80			10

7 JET GROUTING CON MARTELLO FONDO FORO * JET GROUTING WITH DTH

Le aste bifluide e trifluide CRM possono essere utilizzate a rotopercolazione con martello fondo foro (DTH). I sistemi possono essere monofluide o bifluide.

Nel sistema D.114 D2 monojet, si usano aste con doppio condotto in acciaio per alte pressioni. Nel condotto esterno passa l'acqua per alimentare il martello, nel condotto interno passa il cemento che va agli ugelli del monitor.

Il sistema T3 prevede aste a triplo passaggio per eseguire trattamenti di jet grouting trifluide o bifluide (con un condotto dedicato al passaggio del fluido per azionare speciali martelli fondo foro, progettati per l'utilizzo contemporaneo al trattamento Jet grouting).

Nel sistema T3 **cemento-aria-aria** il condotto esterno riceve aria a 17-24 bar per azionare il martello durante la perforazione e lubrificarlo durante il trattamento in risalita jet grouting. Il passaggio intermedio riceve aria a 17-24 bar max e aziona un ugello concentrico al quello del cemento per l'esecuzione di un classico trattamento bifluide aria-cemento.

Nel sistema T3 con martelli ad acqua il condotto interno alimenta con acqua, nella fase di perforazione, il martello. Nella fase di jetting si inserisce una biglia nel condotto centrale che, all'aumentare della pressione del cemento, permette la chiusura del condotto di alimentazione del martello e la contemporanea apertura degli ugelli del cemento. La fase di jetting avviene come un normale trifluide.

Il sistema completo, è certificato CE.

The CRM double and triple fluid jetting rods are suitable for DTH-drilling. These systems are suitable for single or double fluid treatments.

The D.114 jet DTH single fluid D2 system employs high pressure-resistant double steel rods.

The water flows through the outer duct to the hammer. The grout flows through the inner duct to the grout-nozzles.

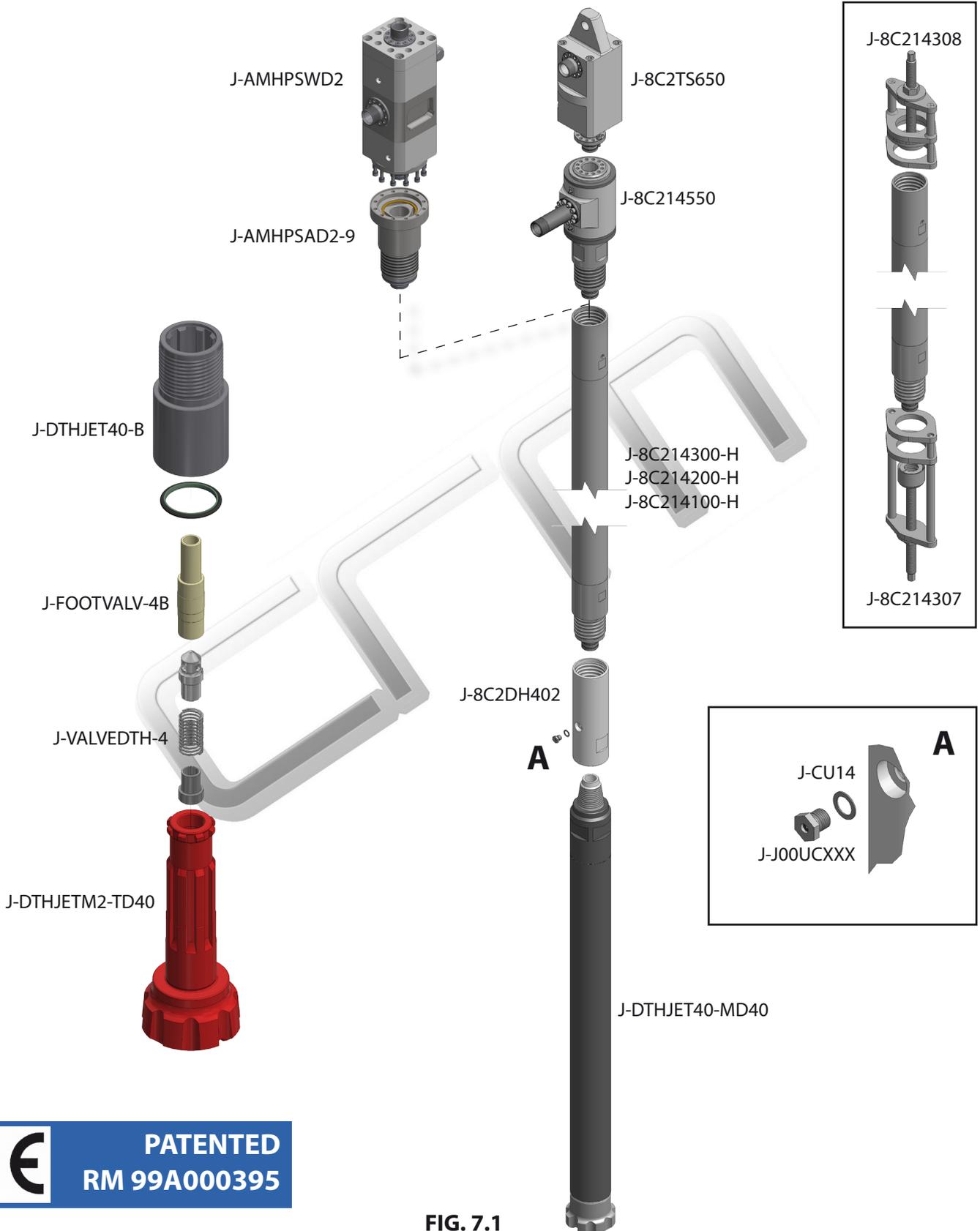
The T3 system employs triple passage rods for triple fluid or double fluid treatments (one passage is used to operate the hammer).

The T3 grout-air-air system operates the jet grouting hammer (Grout mix-Air-Air Dth). During the drilling air flows through the outer passage at 17-24 bar pressure and operates the hammer. During the jet grouting treatment air keeps lubricating the hammer. Air also flows through the intermediate passage at 17-24 bar pressure and operates a nozzle coaxial to the grout nozzle for a classic double fluid jet grouting treatment.

In T3 system for water hammers the inner passage is used in drilling step to feed the hammer. In jetting step a steel ball is placed into the inner passage. When the grout mix increases the pressure, this ball allows the closure of hammer feed passage and simultaneously the opening of grout nozzles passage. The jetting step is performed as a standard K3 system.

The complete system is CE certified.

7.1 D.90 JET 1 DTH AIR HAMMER



CE PATENTED
 RM 99A000395

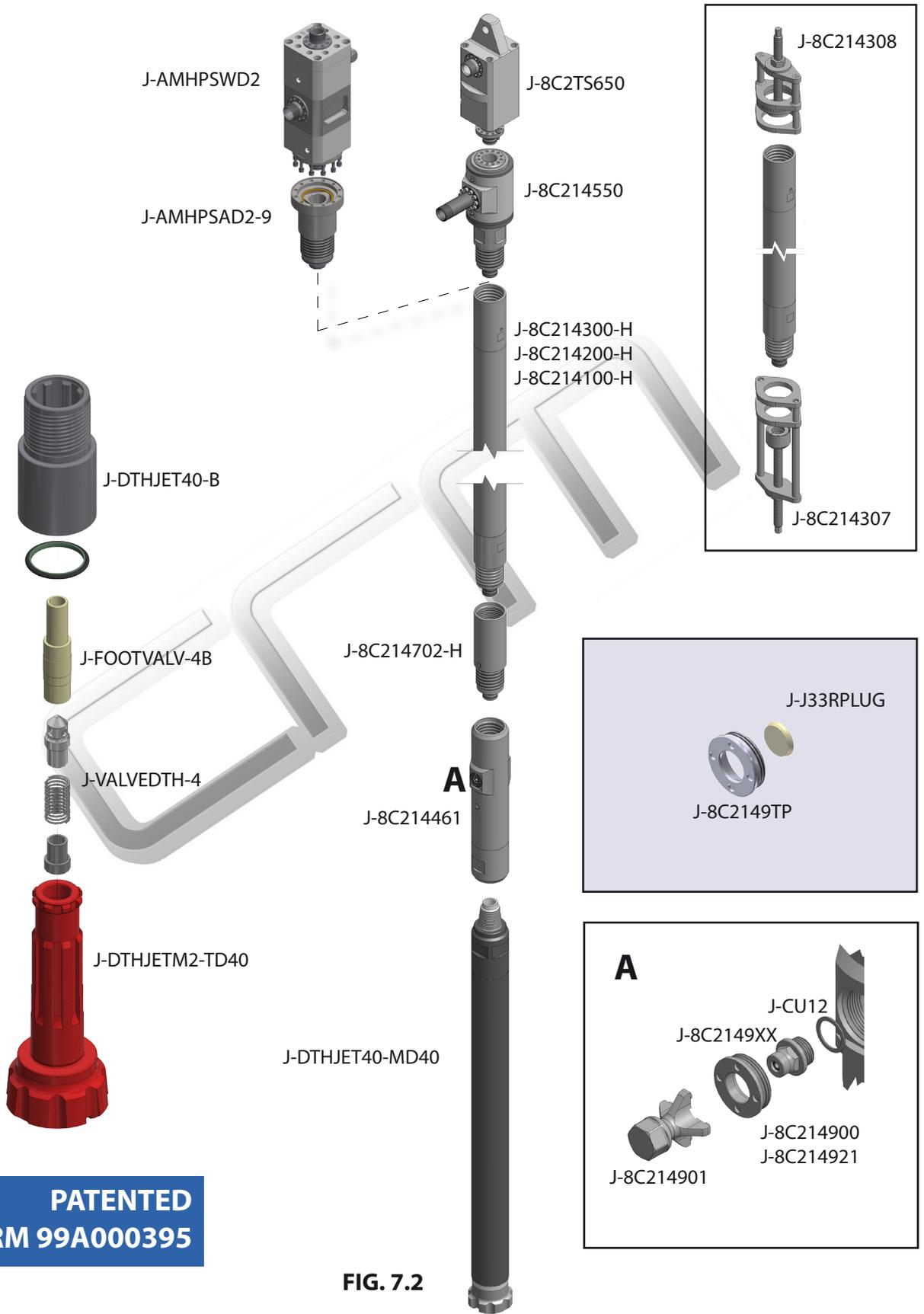
FIG. 7.1



D.90 JET 1 DTH AIR HAMMER- REF. FIG. 7.1

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-8C2TS650	TESTA A.P. 410L/MIN-560BAR	H.P. SWIVEL 410L/MIN-560BAR			11
J-8C214550	TESTA ARIA C2	L.P. AIR SWIVEL C2			19
J-AMHPSWD2	MODULAR HP SWIVEL CEMENTO-ARIA (INLET 1"-1/2)	MODULAR HP SWIVEL GROUT-AIR (INLET 1"-1/2)			46
J-AMHPSAD2-9	ADATTAT. TESTA A.P. D2/ASTE D.90 C2	H.P. SWIVEL D2/ROD D.90 C2 ADAPT.			11
◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇					
J-8C214300-H	ASTA D. 88.9X3000	ROD. D. 90X3000 C2			52,7
J-8C214200-H	ASTA D. 88.9X2000 C2	ROD. D. 90X2000 C2			37,2
J-8C214100-H	ASTA D. 88.9X1000 C2	ROD. D. 90X1000 C2			22
J-8C2DH402	MONITOR MARTELLO JET DTH	JET DTH NOZZLES HOLDER			7,5
◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇					
J-J00UC180	UGELLO JET D. 1.8	JET NOZZLE D. 1.8			0,02
J-J00UC200	UGELLO JET D. 2.0	JET NOZZLE D. 2.0			0,02
J-J00UC220	UGELLO JET D. 2.2	JET NOZZLE D. 2.2			0,02
J-J00UC250	UGELLO JET D. 2.5	JET NOZZLE D. 2.5			0,02
J-J00UC300	UGELLO JET D. 3.0	JET NOZZLE D. 3.0			0,02
J-J00UC350	UGELLO JET D. 3.5	JET NOZZLE D. 3.5			0,02
J-J00UC400	UGELLO JET D. 4.0	JET NOZZLE D. 4.0			0,02
J-CU14	GUARN. UGELLO 1/4"	NOZZLE COPPER SEAL D. 1/4"			0,02
◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇◇					
J-8C2DH403	ADATTAT. D.90 C2 F/F 2"-3/8 AR SOLO ARIA DTH	ADAPTER D.90 C2 F/F 2"-3/8 AR ONLY AIR			
J-8C2TS651	KIT RICAMBI TESTA A.P.	H.P. SWIVEL SPARE PARTS KIT			-
J-8C2TS652	KIT GUARNIZIONI TESTA A.P.	H.P. SWIVEL SEALS KIT			-
J-8C2TS652-A	GUARNIZIONI CENTRALI TESTA 8C2TS650	MAIN GROUT SEALS H.P. SWIVEL			-
J-8C2TS652-H	GUARN.CENTRALI ALTA VELOCITA' H.P.	HIGH SPEED MIDDLE H.P. SEALS			-
J-8C214311	KIT GUARN. ASTA D.88.9 C2	ROD C2 SEALS KIT			-
J-AMHPSWD2-A	KIT RICAMBI MODULAR HP SWIVEL D2	MODULAR HP SWIVEL D2 SPARE PARTS			-
J-AMHPSWD2-B	KIT GUARNIZIONI MODULAR HP SWIVEL D2	MODULAR HP SWIVEL D2 SEALS KIT			-
J-DTHJET40-MD40	MARTELLO JET 4" MD40	JET DTH HAMMER D. 4" MD40			40
J-DTHJEM2-TD40	BIT DTH JET D.130 TD40 CONCAVO CON VALVOLA NO RIT.	D.130 CONCAVE DTH JET BIT TD40 WITH NO RETURN VALVE			
J-DTHJETS	KIT GUARN. DTH JET	DTH JET SEALS KIT			-
J-DTHJETS-1	GUARN. DTH JET AVANCLINDRO	DTH JET SEAL			-
J-VALVEDTH-4	VALVOLA 4" BIT DTH JET	4" DTH JET VALVE			0,2
J-FOOTVALV-4B	FOOT VALVE DTH 4" JETTING	4" FOOT VALVE DTH JETTING			0,09
J-DTHJET40-B	AVANCLINDRO DTH JET 4" MINCON 4HR RD340	DTH JET CHUCK 4" MINCON 4HR RD340			5

7.2 D.90 JET 2 DTH AIR HAMMER



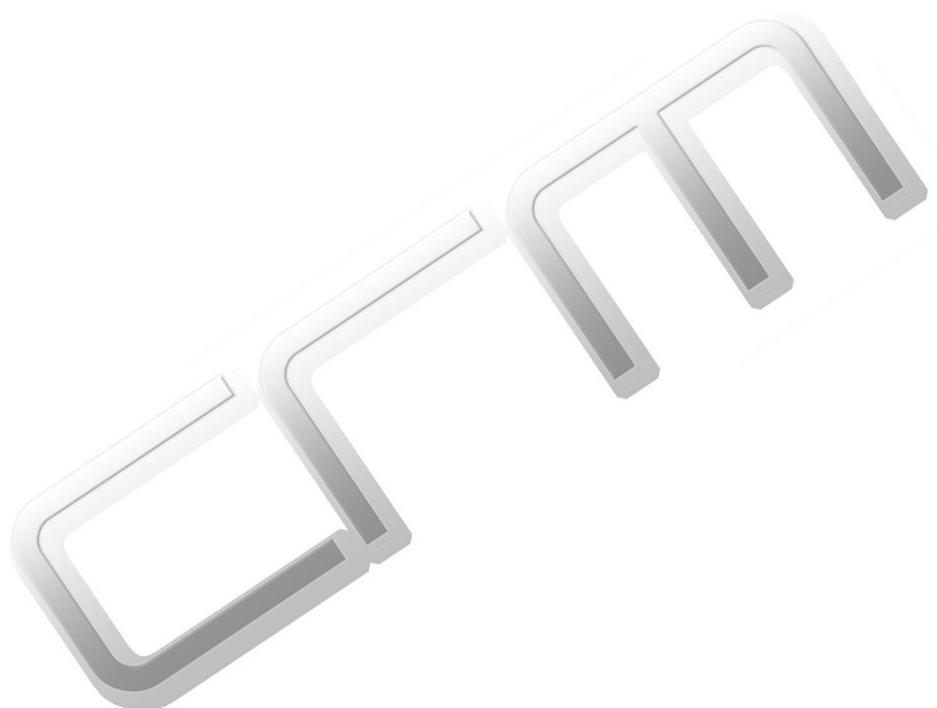
CE PATENTED
 RM 99A000395

FIG. 7.2

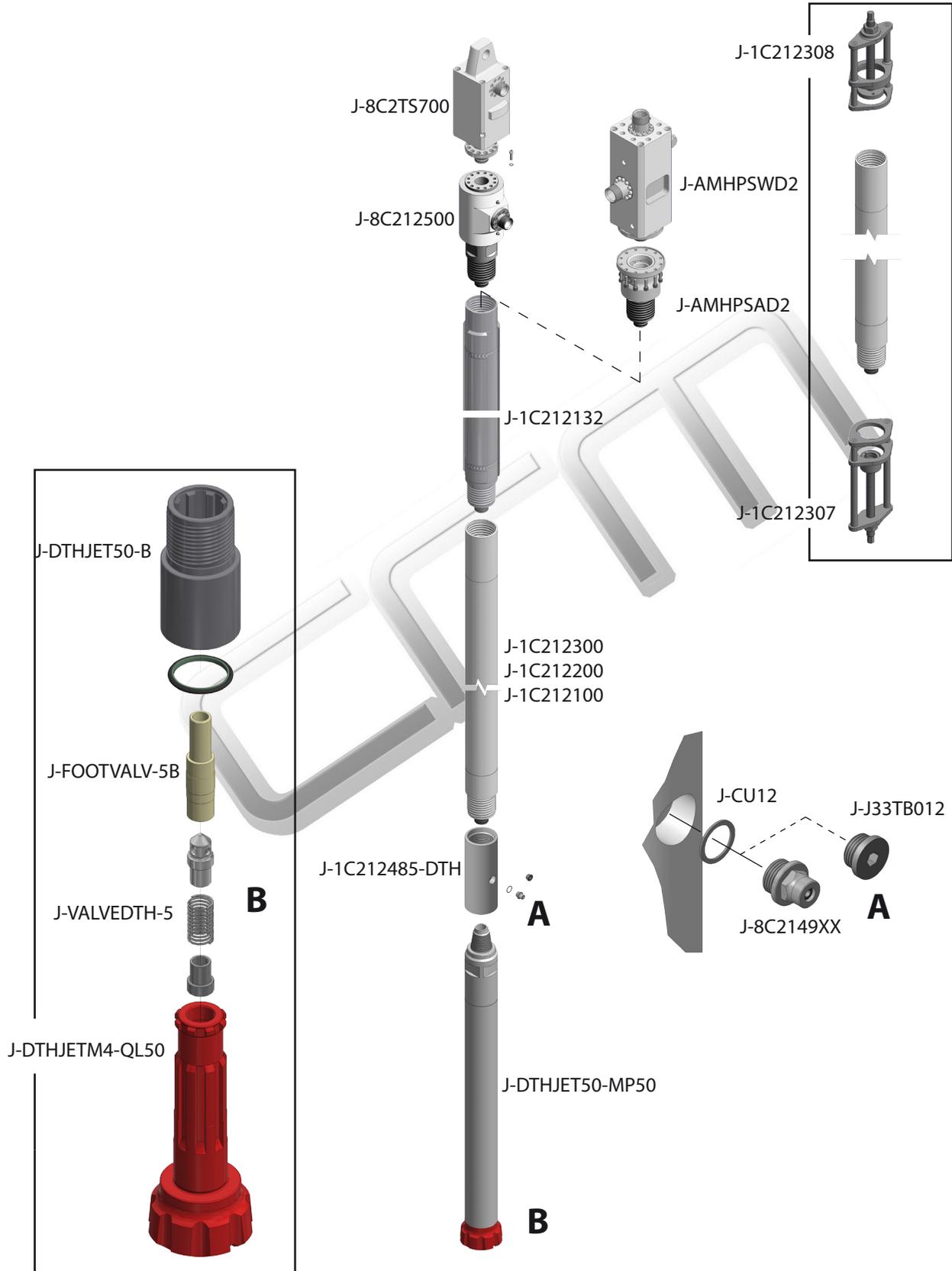


D.90 JET2 DTH AIR HAMMER - REF. FIG. 7.2

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-VALVEDTH-4	VALVOLA BIT 4" DTH JET	4" DTH JET VALVE			0,2
J-FOOTVALV-4B	FOOT VALVE DTH 4" JETTING	4" FOOT VALVE DTH JETTING			0,03
J-DTHJET40-B	AVANCILINDRO DTH JET 4" MINCON 4HR RD340	DTH JET CHUCK 4" MINCON 4HR RD340			5



7.3 D.114 JET 1 DTH AIR HAMMER

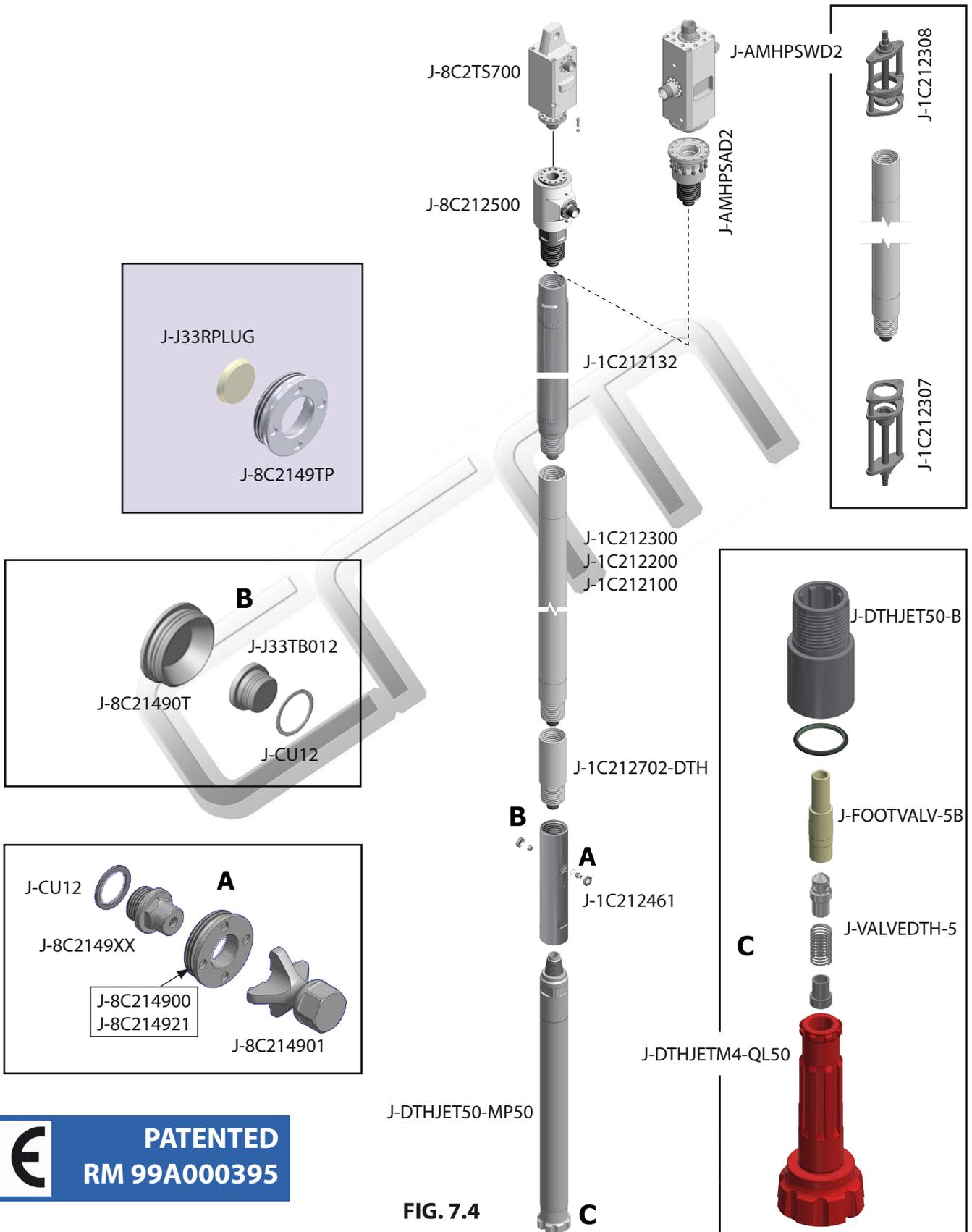




D.114 JET 1 DTH AIR HAMMER - REF. FIG. 7.3

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-AMHPSWD2	MODULAR HP SWIVEL CEMENTO-ARIA (INLET 1"-1/2)	MODULAR HP SWIVEL GROUT-AIR (INLET 1"-1/2)			48
J-AMHPSAD2	ADATTAT. TESTA A.P. D2/ASTE D.114 C2	H.P. SWIVEL D2/ROD D.114 C2 ADAPTER			11
J-8C2TS700	TESTA A.P. 700 L/MIN-560 BAR	H.P. SWIVEL 700L/MIN-560BAR			20
J-8C212500	TESTA ARIA B.P. C2	AIR L.P. SWIVEL C2			28,3
J-1C212132	ASTA D.114C2x1000 De132 CALETT. PER MANDR. MASSIMA COPPIA	ROD D.114x1000 O.D. 132 HOLLOW CLAMP MAX TORQUE			61
J-1C212300	ASTA D. 114X3000 C2	ROD. D. 114X3000 C2			76
J-1C212200	ASTA D. 114X2000 C2	ROD. D. 114X2000 C2			54
J-1C212100	ASTA D. 114X1000 C2	ROD. D. 114X1000 C2			32,6
J-1C212485-DTH	MONITOR C2 D.114 JET 1 PER DTH	D.114 JET 1 FOR DTH NOZZLES HOLDER			14,8
J-8C214980-H	UGELLO CEMENTO D. 8.0 C2 HEAVY DUTY	GROUT NOZZLE D. 8.0 C2 HEAVY DUTY			0,12
J-8C214975-H	UGELLO CEMENTO D.7.5 C2 HEAVY DUTY	GROUT NOZZLE D. 7.5 C2 HEAVY DUTY			0,12
J-8C214970-H	UGELLO CEMENTO D. 7.0 C2 HEAVY DUTY	GROUT NOZZLE D. 7.0 C2 HEAVY DUTY			0,12
J-8C214967-H	UGELLO CEM. D.6.7 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.7 C2 HEAVY DUTY			0,12
J-8C214965-H	UGELLO CEMENTO D. 6.5 C2 HEAVY DUTY	GROUT NOZZLE D. 6.5 C2 HEAVY DUTY			0,12
J-8C214963-H	UGELLO CEM. D.6.3 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.3 C2 HEAVY DUTY			0,12
J-8C214960	UGELLO CEMENTO D. 6.0 C2	GROUT NOZZLE D. 6.0 C2			0,1
J-8C214955	UGELLO CEMENTO D. 5.5 C2	GROUT NOZZLE D. 5.5 C2			0,1
J-8C214950	UGELLO CEMENTO D. 5.0 C2	GROUT NOZZLE D. 5.0 C2			0,1
J-8C214945	UGELLO CEMENTO D. 4.5 C2	GROUT NOZZLE D. 4.5 C2			0,1
J-8C214940	UGELLO CEMENTO D. 4.0 C2	GROUT NOZZLE D. 4.0 C2			0,1
J-CU12	GUARNIZIONE UGELLO CEMENTO D. 1/2"	COPPER SEAL D. 1/2"			-
J-J33TB012	TAPPO M. 1/2" GAS HEX INC.	GROUT NOZZLE PLUG C2			0,1
J-8C2TS701	KIT RICAMBI TESTA A.P.	SWIVEL SPARE KIT			-
J-8C2TS702	KIT GUARN. TESTA A.P.	SWIVEL SEAL KIT			-
J-8C2TS702-A	KIT GUARN. CENTRALI TESTA A.P.	MAIN SEAL KIT H.P. SWIVEL			-
J-8C2TS702-H	KIT GUARN, ALTA VELOCITA'	MAIN SEAL KIT H.P. SWIVEL HIGHT VEL.			-
J-8C212501	KIT GUARN. TESTA B.P. C2	AIR L.P. SWIVEL SEAL KIT			-
J-AMHPSWD2-A	KIT RICAMBI TESTA A.P. D.114 D2	D.114 D2 HP SWIVEL SPARE PARTS			-
J-AMHPSWD2-B	KIT GUARNIZIONI TESTA A.P. D.114 D2	D.114 D2 HP SWIVEL SEALS KIT			-
J-1C212311	KIT GUARN. ASTA D. 114 C2	ROD SEAL KIT			-
J-DTHJET50-MP50	MARTELLO JET 5" MP50 3"-1/2 A.R. M	JET DTH HAMMER D. 5" MP50 3"-1/2 A.R. M			-
J-DTHJETM4-QL50	BIT DTH JET D.150 QL50 CONCAVO CON VALV. NO RIT.	DTH JET D.150 BIT CONCAVE QL50 WITH NO-RET. VALVE			-
J-DTHJET50-B	AVANCL. DTH JET 5" MINCON 5HR MACH 50	DTH JET 5" CHUCK MINCON 5HR MACH 50			-
J-DTHJET50-K	GUARNIZIONE AVANCLINDRO DTH JET 5"	5" DTH JET SEAL			-
J-DTHJET50-S	SERVICE KIT DTH 5" DOM500	SERVICE KIT DTH 5" DOM500			-
J-DTHJET50-R	REPAIR KIT DTH 5" DOM500	REPAIR KIT DTH 5" DOM500			-
J-VALVEDTH-5	VALVOLA BIT DTH JET 5"	5" JET DTH BIT VALVE			0,3
J-FOOTVALV-5B	FOOT VALVE BIT DTH JETTING	BIT FOOT VALVE DTH JETTING			0,08

7.4 D.114 JET 2 DTH AIR HAMMER



J-DTHJET50-MP50

FIG. 7.4

CE PATENTED
 RM 99A000395



D.114 JET 2 DTH AIR HAMMER - REF. FIG. 7.4

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-AMHPSWD2	MODULAR HP SWIVEL CEMENTO-ARIA (INLET 1"-1/2)	MODULAR HP SWIVEL GROUT-AIR (INLET 1"-1/2)			48
J-AMHPSAD2	ADATTAT. TESTA A.P. D2/ASTE D.114 C2	H.P. SWIVEL D2/ROD D.114 C2 ADAPTER			11
J-8C2TS700	TESTA A.P. 700 L/MIN-560 BAR	H.P. SWIVEL 700L/MIN-560BAR			20
J-8C212500	TESTA ARIA B.P. C2	AIR L.P. SWIVEL C2			28,3
J-1C212132	ASTA D.114C2x1000 De132 CALETT. PER MANDR. MASSIMA COPPIA	ROD D.114x1000 O.D. 132 HOLLOW CLAMP MAX TORQUE			61
J-1C212300	ASTA D. 114X3000 C2	ROD. D. 114X3000 C2			76
J-1C212200	ASTA D. 114X2000 C2	ROD. D. 114X2000 C2			54
J-1C212100	ASTA D. 114X1000 C2	ROD. D. 114X1000 C2			32,6
J-1C212461	MONITOR C2 D.114 DTH GROUT MASTER 6"	GROUT MASTER D.114 C2 DTH MONITOR			32,5
J-1C212702-DTH	RACCORDO CON VALVOLA DTH	DTH AIR ADAPTER W/NO RET. VAL.			13,8
J-1C212707	RIDUZIONE D.114 C2 F/M D.114 INT. 42	D.114 C2 F/M D.114 42 INT. ADAPTER			11
J-8C214980-H	UGELLO CEMENTO D. 8.0 C2 HEAVY DUTY	GROUT NOZZLE D. 8.0 C2 HEAVY DUTY			0,12
J-8C214975-H	UGELLO CEMENTO D.7.5 C2 HEAVY DUTY	GROUT NOZZLE D. 7.5 C2 HEAVY DUTY			0,12
J-8C214970-H	UGELLO CEMENTO D. 7.0 C2 HEAVY DUTY	GROUT NOZZLE D. 7.0 C2 HEAVY DUTY			0,12
J-8C214967-H	UGELLO CEM. D.6.7 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.7 C2 HEAVY DUTY			0,12
J-8C214965-H	UGELLO CEMENTO D. 6.5 C2 HEAVY DUTY	GROUT NOZZLE D. 6.5 C2 HEAVY DUTY			0,12
J-8C214963-H	UGELLO CEM. D.6.3 C2 HEAVY-DUTY	GROUT NOZZLE D. 6.3 C2 HEAVY DUTY			0,12
J-8C214960	UGELLO CEMENTO D. 6.0 C2	GROUT NOZZLE D. 6.0 C2			0,1
J-8C214955	UGELLO CEMENTO D. 5.5 C2	GROUT NOZZLE D. 5.5 C2			0,1
J-8C214950	UGELLO CEMENTO D. 5.0 C2	GROUT NOZZLE D. 5.0 C2			0,1
J-8C214945	UGELLO CEMENTO D. 4.5 C2	GROUT NOZZLE D. 4.5 C2			0,1
J-8C214940	UGELLO CEMENTO D. 4.0 C2	GROUT NOZZLE D. 4.0 C2			0,1
J-8C214900	UGELLO ARIA D. 23 C2	AIR NOZZLE D. 23 C2			0,05
J-8C214921	UGELLO ARIA D.21 C2	AIR NOZZLE D. 21 C2			0,05
J-8C2149TP	UGELLO ARIA D.23 C2 PER TAPPO A PERDERE	AIR NOZZLE D.23 C2 FOR REPLAC. PLUG			0,07
J-CU12	GUARNIZIONE UGELLO CEMENTO D. 1/2"	COPPER SEAL D. 1/2"			-
J-8C214901	CHIAVE UGELLO ARIA 8C214900	AIR NOZZLE REMOVING TOOL			0,15
J-8C21490T	TAPPO M. 1"-1/4 UGELLO ARIA	AIR NOZZLE PLUG			0,12
J-J33TB012	TAPPO M. 1/2" GAS HEX INC.	GROUT NOZZLE PLUG C2			0,1
J-J33RPLUG	TAPPO A PERDERE D.23	REPLACEABLE PLUG D.23			0,001
J-8C2TS701	KIT RICAMBI TESTA A.P.	SWIVEL SPARE KIT			-
J-8C2TS702	KIT GUARN. TESTA A.P.	SWIVEL SEAL KIT			-
J-8C2TS702-A	KIT GUARN. CENTRALI TESTA A.P.	MAIN SEAL KIT H.P. SWIVEL			-
J-8C2TS702-H	KIT GUARN. ALTA VELOCITA'	MAIN SEAL KIT H.P. SWIVEL HIGHT VEL.			-
J-8C212501	KIT GUARN. TESTA B.P. C2	AIR L.P. SWIVEL SEAL KIT			-
J-AMHPSWD2-A	KIT RICAMBI TESTA A.P. D.114 D2	D.114 D2 HP SWIVEL SPARE PARTS			-
J-AMHPSWD2-B	KIT GUARNIZIONI TESTA A.P. D.114 D2	D.114 D2 HP SWIVEL SEALS KIT			-
J-1C212311	KIT GUARN. ASTA D. 114 C2	ROD SEAL KIT			-
J-1C212703	KIT GUARN. RAC. VAL. D. 114 C2	NOZZLE HOLDER ADAPTER SEAL KIT			-
J-1C212461-A	KIT. GUARNIZ. MONITOR D.114 C2 DTH	D.114 C2 DTH MONITOR SEALS KIT			-

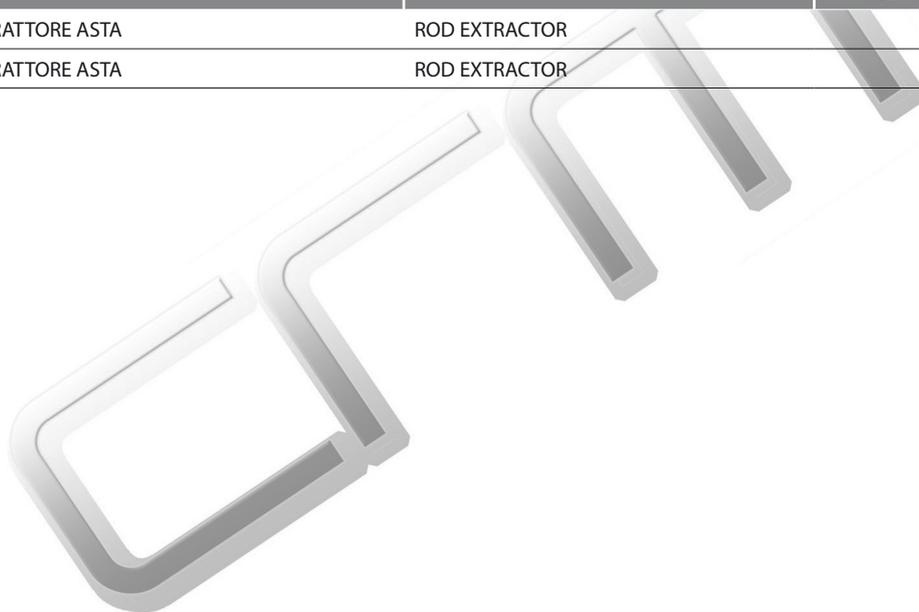


D.114 JET 2 DTH AIR HAMMER - REF. FIG. 7.4

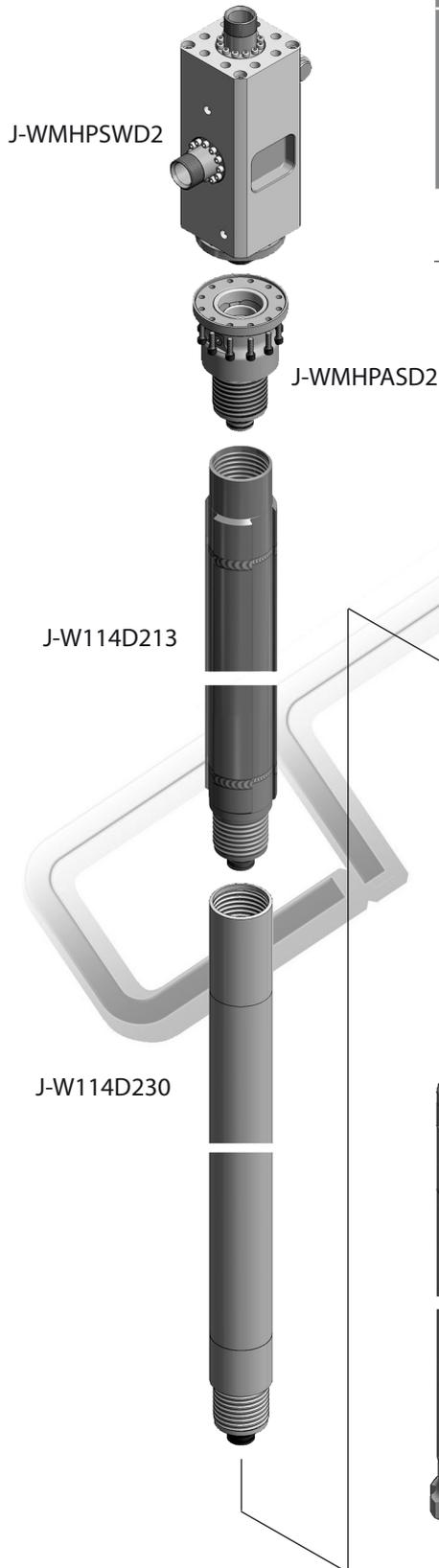
CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-DTHJET50-MP50	MARTELLO JET 5" MP50 QL5 3"-1/2A.R. M	JET DTH HAMMER D. 5" MP50 QL5 3"-1/2A.R. M			-
J-DTHJETM4-QL50	BIT DTH JET D.150 QL50 CONCAVO CON VALVOLA NO RIT.	DTH JET D.150 BIT QL50 CONCAVE WITH NO-RET. VALVE			-
J-DTHJET50-B	AVANCILINDRO DTH JET 5" MINCON 5HR MACH 50	DTH JET 5" CHUCK MINCON 5HR MACH 50			-
J-DTHJET50-K	GUARNIZIONE AVANCILINDRO DTH JET 5"	5" DTH JET SEAL			-
J-DTHJET50-S	SERVICE KIT DTH 5" DOM500	SERVICE KIT DTH 5" DOM500			-
J-DTHJET50-R	REPAIR KIT DTH 5" DOM500	REPAIR KIT DTH 5" DOM500			-
J-VALVEDTH-5	VALVOLA BIT DTH JET 5"	5" JET DTH BIT VALVE			0,3
J-FOOTVALV-5B	FOOT VALVE BIT DTH JETTING	BIT FOOT VALVE DTH JETTING			0,08

ACCESSORI - ACCESSORIES

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-1C212307	ESTRATTORE ASTA	ROD EXTRACTOR			10
J-1C212308	ESTRATTORE ASTA	ROD EXTRACTOR			9



7.5 D.114 JET 1 DTH WATER HAMMER



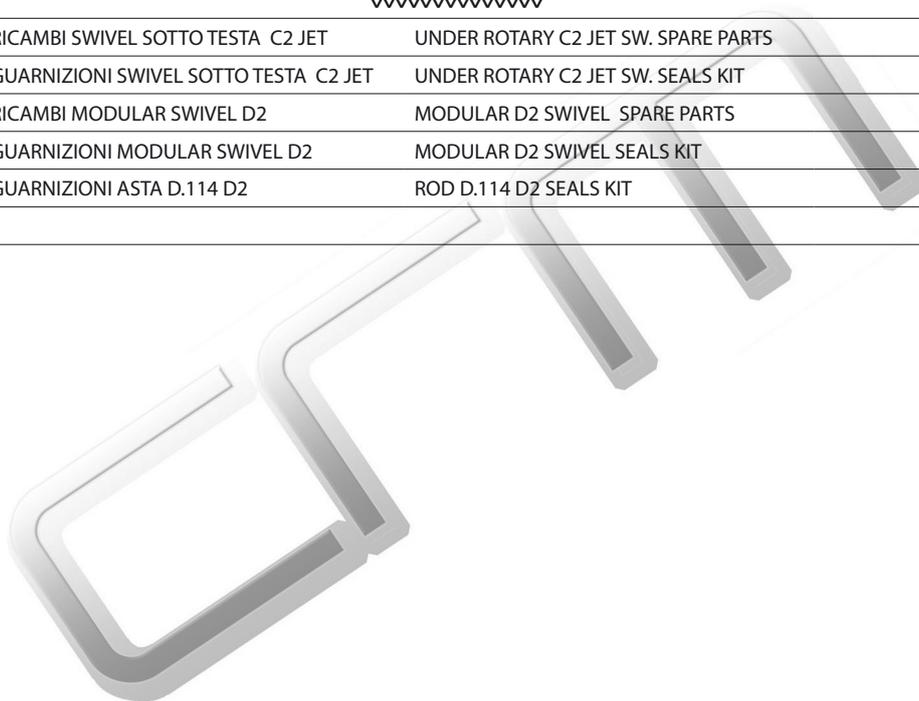
TECHNICAL SPECIFICATIONS						
SWIVEL TYPE	INLET	FLUID TYPE	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-WMHPASD2	1"-1/2	GROUT	35	30	105	56 / 40
	1"-1/2	WATER	22 De			56 / 45

FIG. 7.5



D.114 JET 1 DTH WATER HAMMER - REF. FIG. 7.5

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-WMHPSWD2	MODULAR HP SWIVEL CEMENTO-ACQUA (INLET 1"-1/2)	MODULAR HP SWIVEL GROUT-WATER (INLET 1"-1/2)			48
J-WMHPASD2	ADATTATORE TESTA MODULARE-ASTE D2-C2H	MODULAR HP SWIVEL-D2/C2H ROD ADAPTER			12
0000000000000000					
J-W114D213	ASTA D.114x1500 D2 CALETT. MANDR.PASS. (*) MASSIMA COPPIA	ROD D.114x1500 D2 W/3 WINGS H. CLAMP (*) MAX TORQUE			60
J-W114D230	ASTA D.114x3000 HP D2 DTH JET	ROD D.114x3000 HP D2 DTH JET			111
J-W114D220	ASTA D.114x2000 HP D2 DTH JET	ROD D.114x2000 HP D2 DTH JET			81
J-W114D210	ASTA D.114x1000 HP D2 DTH JET	ROD D.114x1000 HP D2 DTH JET			56
J-W114D2M1	MONITOR JET 1 PER ASTE D2 CON WATER H.	NOZZLES HOLDER JET 1 FOR D2 AND W. H.			20
J-W114D240	RID. D.114 HP D2 F/M DTH JET W100JG	HP D2 F/M DTH JET W100JG ADAPT.			
0000000000000000					
J-SWC2312R-A	KIT RICAMBI SWIVEL SOTTO TESTA C2 JET	UNDER ROTARY C2 JET SW. SPARE PARTS			-
J-SWC2312R-B	KIT GUARNIZIONI SWIVEL SOTTO TESTA C2 JET	UNDER ROTARY C2 JET SW. SEALS KIT			-
J-WMHPSWD2-A	KIT RICAMBI MODULAR SWIVEL D2	MODULAR D2 SWIVEL SPARE PARTS			-
J-WMHPSWD2-B	KIT GUARNIZIONI MODULAR SWIVEL D2	MODULAR D2 SWIVEL SEALS KIT			-
J-W114D231	KIT GUARNIZIONI ASTA D.114 D2	ROD D.114 D2 SEALS KIT			-
(*) OPTIONAL					



7.6 D.114 HP T3 JET 2 DTH AIR HAMMER (GROUT-AIR-AIR)

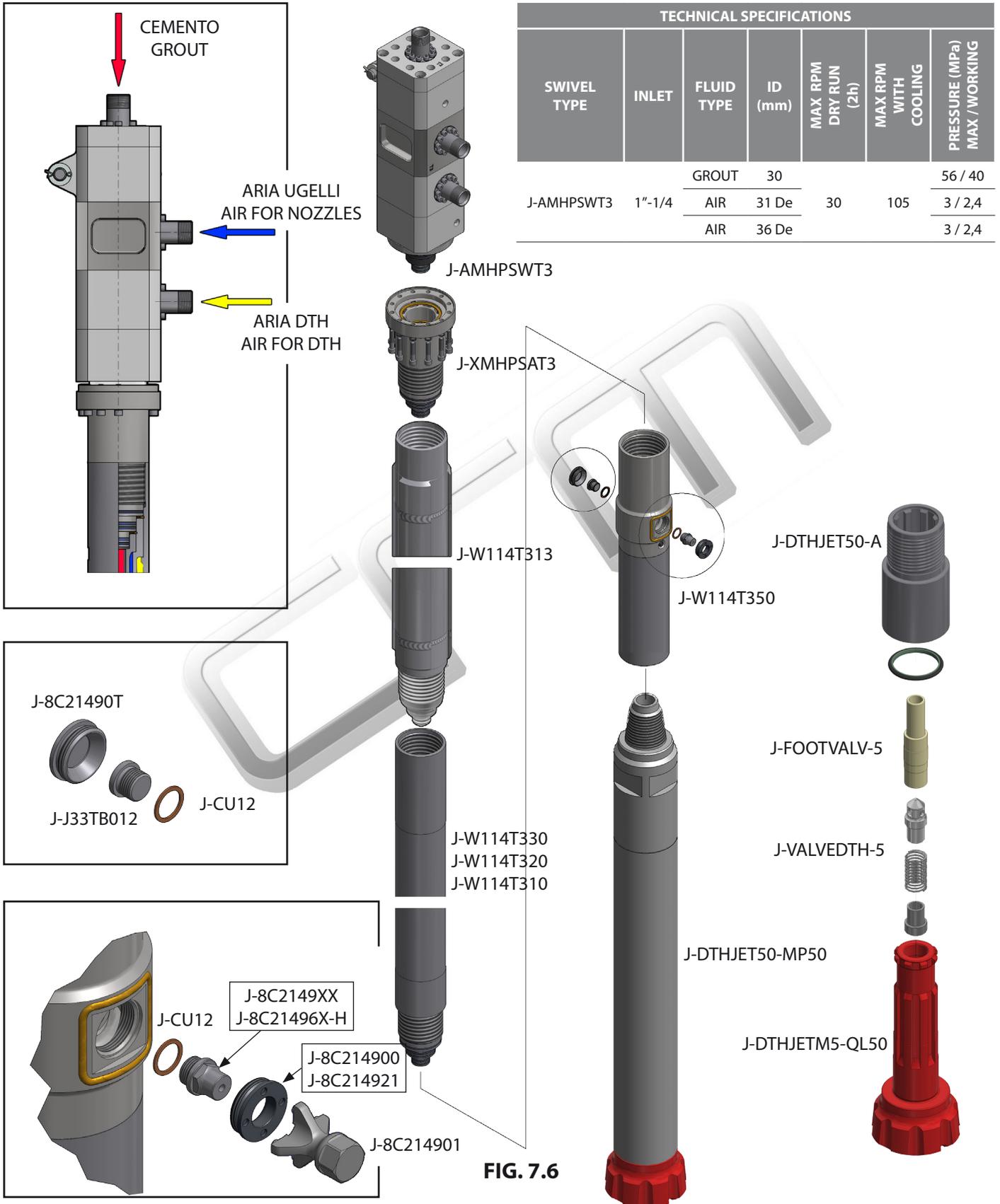


FIG. 7.6



D.114 HP T3 JET 2 DTH AIR HAMMER (GROUT-AIR-AIR) - REF. FIG. 7.6

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-AMHPSWT3	MODULAR HP SWIVEL CEMENTO-ARIA-ARIA (INLET 1"-1/4)	MODULAR HP SWIVEL GROUT-AIR-AIR (INLET 1"-1/4)			58
J-XMHPSAT3	ADATTATORE TESTA-ASTE D.114 T3 HP	SWIVEL-ROD ADAPTER D.114 HP T3			13
J-W114T313	ASTA D.114X1500 T3 W/H 3 ALETTE PER MANDRINO PASSANTE MASSIMA COPPIA	ROD D.114X1500 T3 W/H 3 WINGS FOR HOLLOW CLAMP MAX TORQUE			60
J-W114T330	ASTA D.114X3000 HP T3 FOR DTH JET	ROD D.114X3000 HP T3 FOR DTH JET			135
J-W114T320	ASTA D.114X2000 HP T3 FOR DTH JET	ROD D.114X2000 HP T3 FOR DTH JET			92
J-W114T310	ASTA D.114X1000 HP T3 FOR DTH JET	ROD D.114X1000 HP T3 FOR DTH JET			49
J-W114T350	MONITOR D.114 T3 ARIA-CEMENTO PER DTH J-DTHJET50	NOZZLES HOLDER GROUT-AIR FOR DTH J-DTHJET50			55
J-DTHJET50-MP50	MARTELLO JET 5" MP50 3"-1/2 A.R. M	JET 5" HAMMER MP50 3"-1/2 A.R. M			-
J-DTHJETM5-QL50	BIT DTH JET D.165 HD QL50	BIT DTH JET D.165 HEAVY DUTY QL50			-
J-8C214900	UGELLO ARIA D.23 C2	AIR NOZZLE D.23 C2			0,05
J-8C214921	UGELLO ARIA D.21 C2	AIR NOZZLE D.21 C2			0,05
J-8C214935	UGELLO CEM. D.3.5 C2	GROUT NOZZLE D.3.5 C2			0,1
J-8C214940	UGELLO CEM. D.4.0 C2	GROUT NOZZLE D.4.0 C2			0,1
J-8C214945	UGELLO CEM. D.4.5 C2	GROUT NOZZLE D.4.5 C2			0,1
J-8C214950	UGELLO CEM. D.5.0 C2	GROUT NOZZLE D.5.0 C2			0,1
J-8C214955	UGELLO CEM. D.5.5 C2	GROUT NOZZLE D.5.5 C2			0,1
J-8C214960-H	UGELLO CEM. D.6.0 C2 HEAVY DUTY	GROUT NOZZLE D.6.0 C2 HEAVY DUTY			0,12
J-8C214963-H	UGELLO CEM. D.6.3 C2 HEAVY-DUTY	GROUT NOZZLE D.6.3 C2 HEAVY-DUTY			0,12
J-8C214965-H	UGELLO CEM. D.6.5 C2 HEAVY-DUTY	GROUT NOZZLE D.6.5 C2 HEAVY-DUTY			0,12
J-CU12	GUARNIZIONE RAME D.1/2" UGELLO CEMENTO	GROUT NOZZLE COPPER SEAL D.1/2"			0,12
J-J33TB012	TAPPO 1/2" GAS UGELLO CEMENTO	GROUT NOZZLE PLUG 1/2" GAS			-
J-8C214901	CHIAVE PER UGELLO ARIA	AIR NOZZLE SPANNER			0,15
J-8C21490T	TAPPO UGELLO ARIA	AIR NOZZLE PLUG			0,12
J-AMHPSWT3-A	KIT RICAMBI TESTA MODULAR T3 D.114	MODULAR HP SWIVEL T3 D.114 SPARE PARTS			-
J-AMHPSWT3-B	KIT GUARNIZIONI TESTA D.114 T3	SWIVEL T3 D.114 SEALS KIT			-
J-W114T331	KIT GUARNIZIONI ASTA D.114 T3	D.114 T3 ROD SEALS KIT			-
J-W114T351	KIT GUARNIZIONI MONITOR D.114 T3 PER DTH 5"	D.114 T3 NOZZLES HOLDER SEALS KIT			-
J-VALVEDTH-5	VALVOLA BIT DTH 5" JET	DTH 5" JET BIT VALVE			0,3
J-FOOTVALV-5	FOOT VALVE BIT DTH 5" JETTING	FOOT VALVE BIT DTH 5" JETTING			0,08
J-DTHJET50-A	AVANCILINDRO MARTELLO JET 5"	CHUCK JET 5" HAMMER			-
J-DTHJET50-K	GUARNIZIONE AVANCILINDRO DTH JETTING 5"	CHUCK SEAL JET 5" HAMMER			-
J-DTHJET50-R	REPAIR KIT DTH 5"	REPAIR KIT DTH 5"			-
J-DTHJET50-S	SERVICE KIT DTH 5"	SERVICE KIT DTH 5"			-

7.7 D.114 HP T3 JET 3 DTH WATER HAMMER

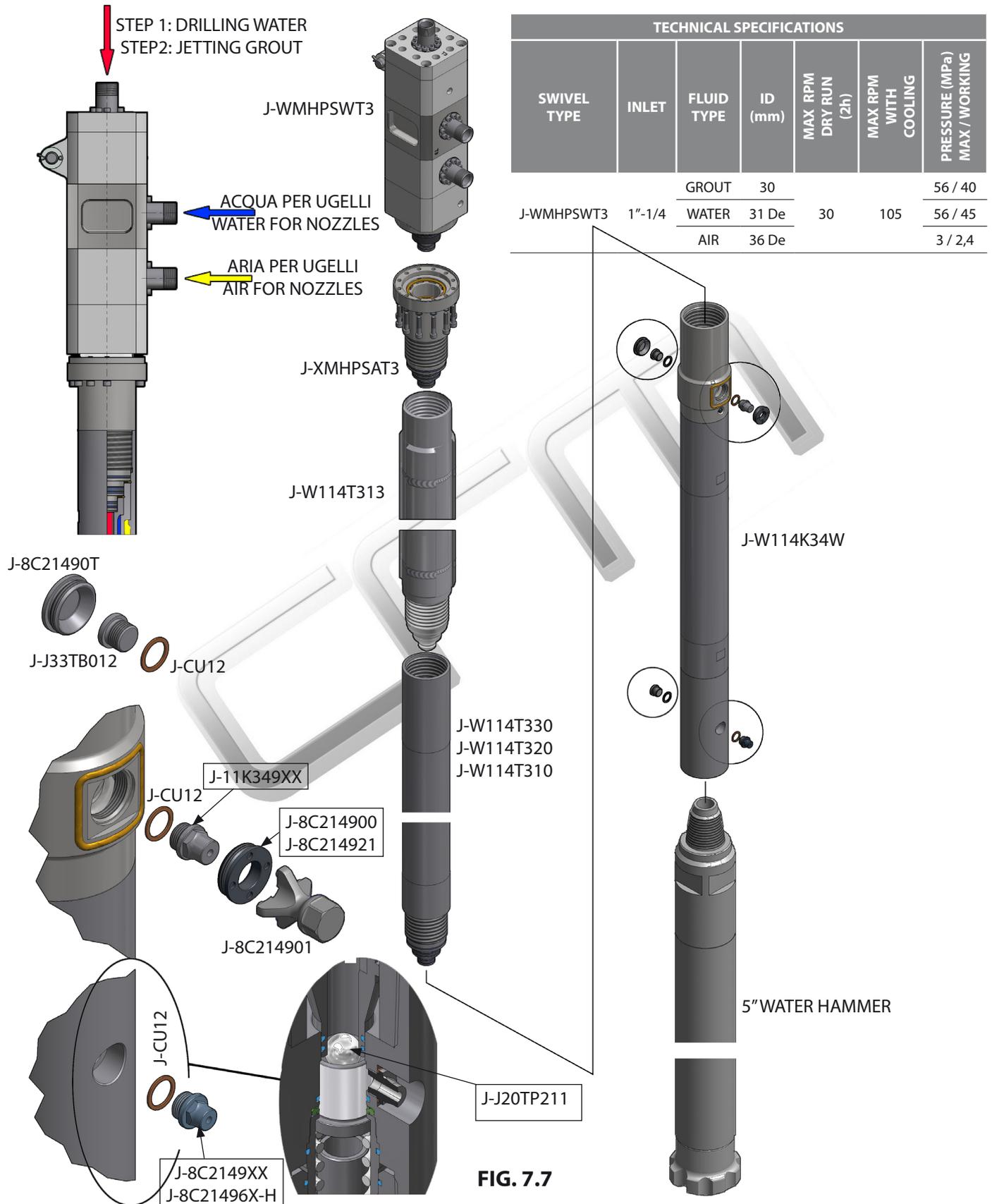


FIG. 7.7



D.114 HP T3 JET 3 DTH WATER HAMMER - REF. FIG. 7.7

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-WMHPSWT3	MODULAR HP SWIVEL CEMENTO-ACQUA-ARIA (INLET 1"-1/4)	MODULAR HP SWIVEL GROUT-WATER-AIR (INLET 1"-1/4)			58
J-XMHPSAT3	ADATTATORE TESTA-ASTE D.114 T3 HP	SWIVEL-ROD ADAPTER D.114 HP T3			13
J-W114T313	ASTA D.114X1500 T3 W/H 3 ALETTE PER MANDRINO PASSANTE MASSIMA COPPIA	ROD D.114X1500 T3 W/H 3 WINGS FOR HOLLOW CLAMP MAX TORQUE			60
J-W114T330	ASTA D. 114X3000 T3	ROD D. 114X3000 T3 JET			135
J-W114T320	ASTA D. 114X2000 T3	ROD D. 114X2000 T3 JET			92
J-W114T310	ASTA D. 114X1000 T3	ROD D. 114X1000 T3 JET			49
J-W114K34W	MONITOR D. 114 T3 PER W120	NOZZLES HOLDER D. 114 T3 FOR W120			67
J-W114T3M1	MONITOR D.114 T3 MONO PRE-BORING	D.114 T3 SINGLE FOR PRE-BORING			22
J-8C214900	UGELLO ARIA D. 23 D. 114 K3	AIR NOZZLE D. 23 D. 114 K3			0,1
J-8C214921	UGELLO ARIA D. 21 D. 114 K3	AIR NOZZLE D. 21 D. 114 K3			0,1
J-11K34935	UGELLO ACQUA D. 3.5 D. 114 K3	WATER NOZZLE D. 3.5 D. 114 K3			0,1
J-11K34940	UGELLO ACQUA D. 4.0 D. 114 K3	WATER NOZZLE D. 4.0 D. 114 K3			0,1
J-11K34945	UGELLO ACQUA D. 4.5 D. 114 K3	WATER NOZZLE D. 4.5 D. 114 K3			0,1
J-11K34950	UGELLO ACQUA D. 5.0 D. 114 K3	WATER NOZZLE D. 5.0 D. 114 K3			0,1
J-11K34955	UGELLO ACQUA D. 5.5 D. 114 K3	WATER NOZZLE D. 5.5 D. 114 K3			0,1
J-11K34960	UGELLO ACQUA D. 6.0 D. 114 K3	WATER NOZZLE D. 6.0 D. 114 K3			0,1
J-CU12	GUARN. UGELLO CEMENTO 1/2"	COPPER SEAL D. 1/2"			-
J-8C214901	CHIAVE UGELLO ARIA 8C214900	AIR NOZZLE REMOVING TOOL			0,15
J-8C21490T	TAPPO M. 1"-1/4 UGELLO ARIA	AIR NOZZLE PLUG			0,12
J-J33TB012	TAPPO M. 1/2" GAS HEX INC.	GROUT NOZZLE PLUG C2			0,1
J-8C214940	UGELLO CEM. D. 4.0 C2	GROUT NOZZLE D. 4.0			0,1
J-8C214945	UGELLO CEM. D. 4.5 C2	GROUT NOZZLE D. 4.5			0,1
J-8C214950	UGELLO CEM. D. 5.0 C2	GROUT NOZZLE D. 5.0			0,1
J-8C214955	UGELLO CEM. D. 5.5 C2	GROUT NOZZLE D. 5.5			0,1
J-8C214960-H	UGELLO CEM. D. 6.0 C2 HEAVY DUTY	GROUT NOZZLE D. 6.0 HEAVY DUTY			0,12
J-8C214963-H	UGELLO CEM. D. 6.3 C2 HEAVY DUTY	GROUT NOZZLE D. 6.3 HEAVY DUTY			0,12
J-8C214965-H	UGELLO CEM. D. 6.5 C2 HEAVY DUTY	GROUT NOZZLE D. 6.5 HEAVY DUTY			0,12
J-8C214967-H	UGELLO CEM. D. 6.7 C2 HEAVY DUTY	GROUT NOZZLE D. 6.7 HEAVY DUTY			0,12
J-8C214970-H	UGELLO CEM. D. 7.0 C2 HEAVY DUTY	GROUT NOZZLE D. 7.0 HEAVY DUTY			0,12
J-8C214975-H	UGELLO CEM. D. 7.5 C2 HEAVY DUTY	GROUT NOZZLE D. 7.0 HEAVY DUTY			0,12
J-8C214980-H	UGELLO CEM. D. 8.0 C2 HEAVY DUTY	GROUT NOZZLE D. 8.0 HEAVY DUTY			0,12
J-J20TP211	SFERA D.20	D.20 STEEL BALL			0,03
00000000000000					
J-WMHPSWT3-A	KIT RICAMBI TESTA T3 D.114	T3 SWIVEL SPARE PARTS			-
J-WMHPSWT3-B	KIT GUARN. TESTA D. 114 T3	SWIVEL SEAL KIT D. 114 T3			-
J-W114K341W	KIT RICAMBI MONITOR D.114 T3 PER W120	D.114 T3 NOZZLES HOLDER SPARE PARTS FOR W120			-
J-W114K342W	KIT GUARN. MONITOR D. 114 T3 PER W120	D.114 T3 NOZZLES HOLDER SEAL KIT FOR W120			-
J-W114T331	KIT GUARN. ASTA D. 114 T3	SEAL KIT ROD D. 114 T3			-

7.8 D.114 HP T3 JET 2 DTH WATER HAMMER

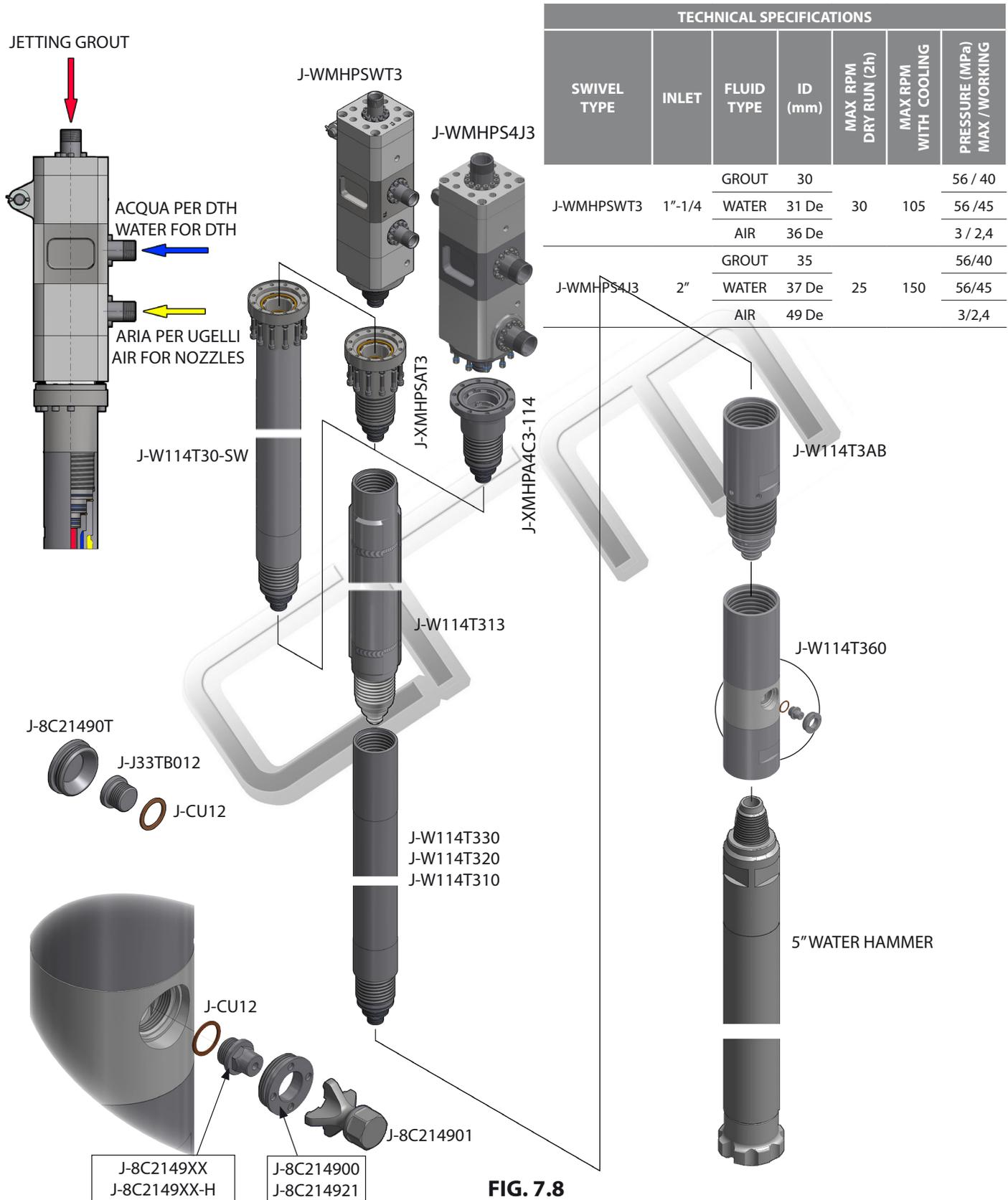


FIG. 7.8

7.9 D.127 C3 JET 2 DTH WATER HAMMER

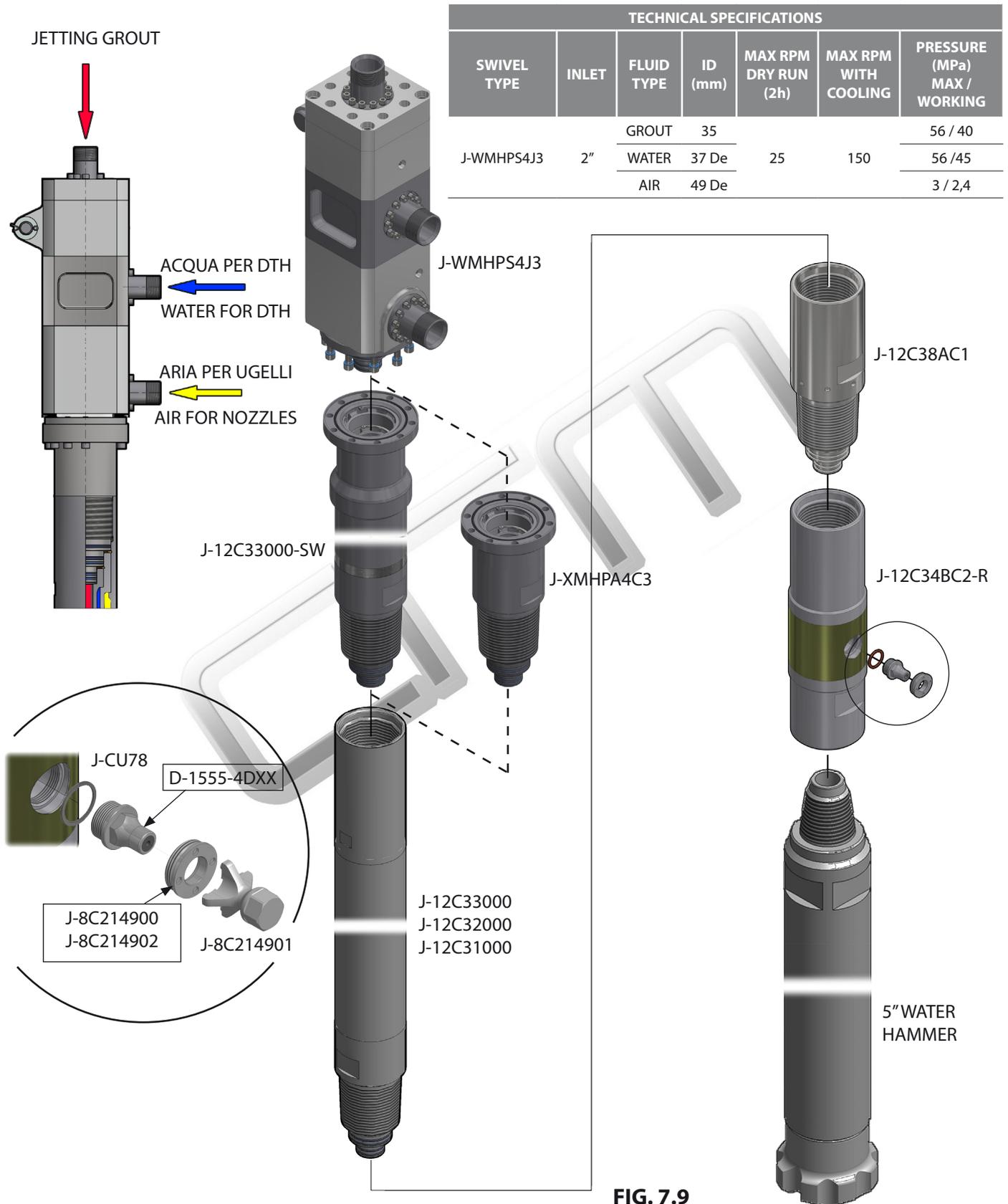


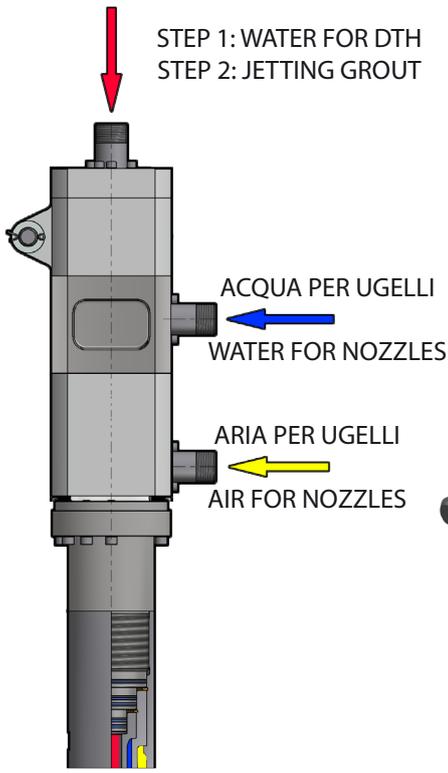
FIG. 7.9



D.127 C3 JET 2 DTH WATER HAMMER - REF. FIG. 7.9

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-WMHPS4J3	MODULAR HP SWIVEL CEMENTO-ACQUA-ARIA (INLET 2")	MODULAR HP SWIVEL GROUT-WATER-AIR (INLET 2")			69,4
J-XMHPA4C3	ADATTATORE MODULAR HP SWIVEL - ASTA D.127 C3	ADAPTER MODULAR HP SWIVEL - ROD D.127 C3			9
J-12C33000-SW	ASTA D.127X3000 C3 JETTING CON FLANGIA	FLANGED ROD D.127X3000 C3 JET			137
J-12C33000	ASTA D.127X3000 C3 JETTING FRIZIONATA	FRICTIONED ROD D.127X3000 C3 JET			111
J-12C32000	ASTA D.127X2000 C3 JETTING FRIZIONATA	FRICTIONED ROD D.127X2000 C3 JET			76,5
J-12C31000	ASTA D.127X1000 C3 JETTING FRIZIONATA	FRICTIONED ROD D.127X1000 C3 JET			43
J-12C34BC2-R	MONITOR D.127 C3 PER JET C2 + DTH	NOZZLES HOLDER D. 127 C3 FOR C2 JET+ DTH			67
J-12C38AC1	CROSSOVER D.127 C3 PER JET C2 + DTH	CROSSOVER D. 127 C3 FOR C2 JET+ DTH			
D-1555-4D60	UGELLO CEMENTO D.6.0-7/8	GROUT NOZZLE D. 6.0-7/8			0,2
D-1555-4D65	UGELLO CEMENTO D.6.5-7/8	GROUT NOZZLE D. 6.5-7/8			0,2
D-1555-4D70	UGELLO CEMENTO D.7.0-7/8	GROUT NOZZLE D. 7.0-7/8			0,2
D-1555-4D75	UGELLO CEMENTO D.7.5-7/8	GROUT NOZZLE D. 7.5-7/8			0,2
D-1555-4D80	UGELLO CEMENTO D.8.0-7/8	GROUT NOZZLE D. 8.0-7/8			0,2
D-1555-4D85	UGELLO CEMENTO D.8.5-7/8	GROUT NOZZLE D. 8.5-7/8			0,2
D-1555-4D90	UGELLO CEMENTO D.9.0-7/8	GROUT NOZZLE D. 9.0-7/8			0,2
J-8C214900	UGELLO ARIA D. 23 C2	AIR NOZZLE D. 23 C2			0,05
J-8C214902	UGELLO ARIA D. 24 C2	AIR NOZZLE D. 24 C2			0,05
J-CU78	GUARNIZIONE UGELLO CEMENTO 7/8" I.D. 30	COPPER SEAL D. 7/8" I.D. 30			-
J-8C214901	CHIAVE UGELLO ARIA 8C214900	AIR NOZZLE REMOVING TOOL			0,15
J-WMHPS4J3-A	KIT CUSCINETTI MODULAR SW. J3	J3 HP SWIVEL BEARINGS KIT			-
J-WMHPS4J3-B	KIT GUARNIZ. SWIVEL J3 HP WATER, AIR AND SERVICE	SEALS KIT SWIVEL J3 HP WATER, AIR AND SERVICE			
602-25	GUARNIZIONE 602-25 d.2,75"	SEAL 602-25 d.2,75"			

7.10 D.127 C3 JET 3 DTH WATER HAMMER



TECHNICAL SPECIFICATIONS						
SWIVEL TYPE	INLET	FLUID TYPE	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-WMHP54J3	2"	GROUT	35	25	150	56 / 40
		WATER	37 De			56 / 45
		AIR	49 De			3 / 2,4

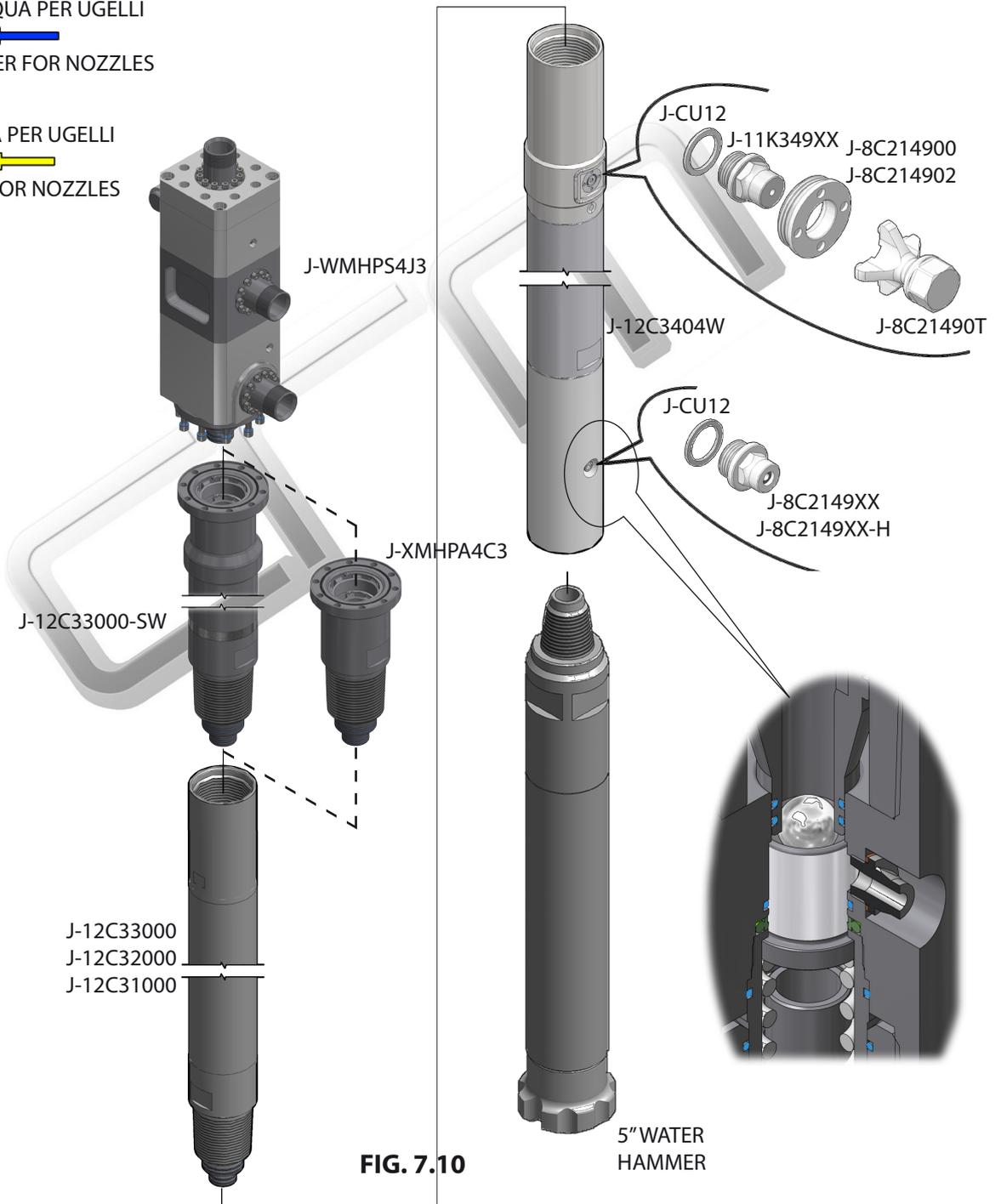


FIG. 7.10



D.127 C3 JET 3 DTH WATER HAMMER - REF. FIG. 7.10

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-WMHP54J3	MODULAR HP SWIVEL CEMENTO-ACQUA-ARIA (INLET 2")	MODULAR HP SWIVEL GROUT-WATER-AIR (INLET 2")			69,4
J-XMHP4C3	ADATTATORE MODULAR HP SWIVEL - ASTA D.127 C3	ADAPTER MODULAR HP SWIVEL - ROD D.127 C3			9
J-12C33000-SW	ASTA FLANGIATA D.127 C3 L=3000	FLANGED ROD D.127 C3 L=3000			139
J-12C33000	ASTA D.127X3000 C3 JETTING FRIZIONATA	FRICTIONED ROD D.127X3000 C3 JET			111
J-12C32000	ASTA D.127X2000 C3 JETTING FRIZIONATA	FRICTIONED ROD D.127X2000 C3 JET			76,5
J-12C31000	ASTA D.127X1000 C3 JETTING FRIZIONATA	FRICTIONED ROD D.127X1000 C3 JET			43
J-12C3404K	MONITOR D.127 C3 JETTING	NOZZLE HOLDER D.127 C3 JETTING			99
J-8C214900	UGELLO ARIA D.23	AIR NOZZLE D.23			0,1
J-8C214902	UGELLO ARIA D.24	AIR NOZZLE D.24			0,1
J-11K34935	UGELLO ACQUA D.3.5 K3	WATER NOZZLE D.3.5 K3			0,1
J-11K34940	UGELLO ACQUA D.4.0 K3	WATER NOZZLE D.4.0 K3			0,1
J-11K34945	UGELLO ACQUA D.4.5 K3	WATER NOZZLE D.4.5 K3			0,1
J-11K34950	UGELLO ACQUA D.5.0 K3	WATER NOZZLE D.5.0 K3			0,1
J-11K34955	UGELLO ACQUA D.5.5 K3	WATER NOZZLE D.5.5 K3			0,1
J-11K34960	UGELLO ACQUA D.6.0 K3	WATER NOZZLE D.6.0 K3			0,1
J-11K34963	UGELLO ACQUA D.6.3 K3	WATER NOZZLE D.6.3 K3			0,1
J-11K34965	UGELLO ACQUA D.6.5 K3	WATER NOZZLE D.6.5 K3			0,1
J-11K34967	UGELLO ACQUA D.6.7 K3	WATER NOZZLE D.6.7 K3			0,1
J-11K34970	UGELLO ACQUA D.7.0 K3	WATER NOZZLE D.7.0 K3			0,1
J-CU12	GUARNIZIONE RAME 1/2"	COPPER SEAL D.1/2"			-
J-8C214940	UGELLO CEM. D.4.0 C2	GROUT NOZZLE D.4.0 C2			0,1
J-8C214945	UGELLO CEM. D.4.5 C2	GROUT NOZZLE D.4.5 C2			0,1
J-8C214950	UGELLO CEM. D.5.0 C2	GROUT NOZZLE D.5.0 C2			0,1
J-8C214955	UGELLO CEM. D.5.5 C2	GROUT NOZZLE D.5.5 C2			0,1
J-8C214960-H	UGELLO CEM. D.6.0 C2 HEAVY DUTY	GROUT NOZZLE D.6.0 C2 HEAVY DUTY			0,12
J-8C214963-H	UGELLO CEM. D.6.3 C2 HEAVY-DUTY	GROUT NOZZLE D.6.3 C2 HEAVY-DUTY			0,12
J-8C214965-H	UGELLO CEM. D.6.5 C2 HEAVY-DUTY	GROUT NOZZLE D.6.5 C2 HEAVY-DUTY			0,12
J-8C214967-H	UGELLO CEM. D.6.7 C2 HEAVY-DUTY	GROUT NOZZLE D.6.7 C2 HEAVY-DUTY			0,12
J-8C214970-H	UGELLO CEM. D.7.0 C2 HEAVY-DUTY	GROUT NOZZLE D.7.0 C2 HEAVY-DUTY			0,12
J-8C214975-H	UGELLO CEM. D.7.5 C2 HEAVY-DUTY	GROUT NOZZLE D.7.5 C2 HEAVY-DUTY			0,12
J-8C214980-H	UGELLO CEM. D.8.0 C2 HEAVY-DUTY	GROUT NOZZLE D.8.0 C2 HEAVY-DUTY			0,12
J-8C214901	CHIAVE UGELLO ARIA 8C214900	AIR NOZZLE 8C214900 REMOVING TOOL			0,15
J-8C21490T	TAPPO M 1"1/4 UGELLO ARIA	1"1/4 AIR NOZZLE MALE PLUG			0,12
J-J33TB012	TAPPO M. 1/2" GAS EX INC	1/2" GAS MALE PLUG HEX SOCKET			0,1
J-WMHP54J3-A	KIT CUSCINETTI MODULAR SW. J3	J3 HP SWIVEL BEARINGS KIT			-
J-WMHP54J3-B	KIT GUARNIZ. SWIVEL J3 HP WATER, AIR AND SERVICE	SEALS KIT SWIVEL J3 HP WATER, AIR AND SERVICE			
602-25	GUARNIZIONE 602-25 d.2,75"	SEAL 602-25 d.2,75"			

8 JET-GROUTING PER POSIZIONATORI * JET GROUTING FOR TUNNELLING

Attrezzature jet-grouting adatte a lavorare su posizionatori, per consolidare il terreno sciolto/instabile davanti al fronte di gallerie, prima dello scavo.

Jet-grouting equipment for tunnelling rig, is specifically designed for consolidating the weak/unstable soil ahead of the tunnel face before the excavation.



8.1 D.90 JET RP FOR TUNNELLING

TECHNICAL SPECIFICATIONS					
SWIVEL TYPE	INLET	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-SW90278R	1"-1/4	20	30	105	56 / 40

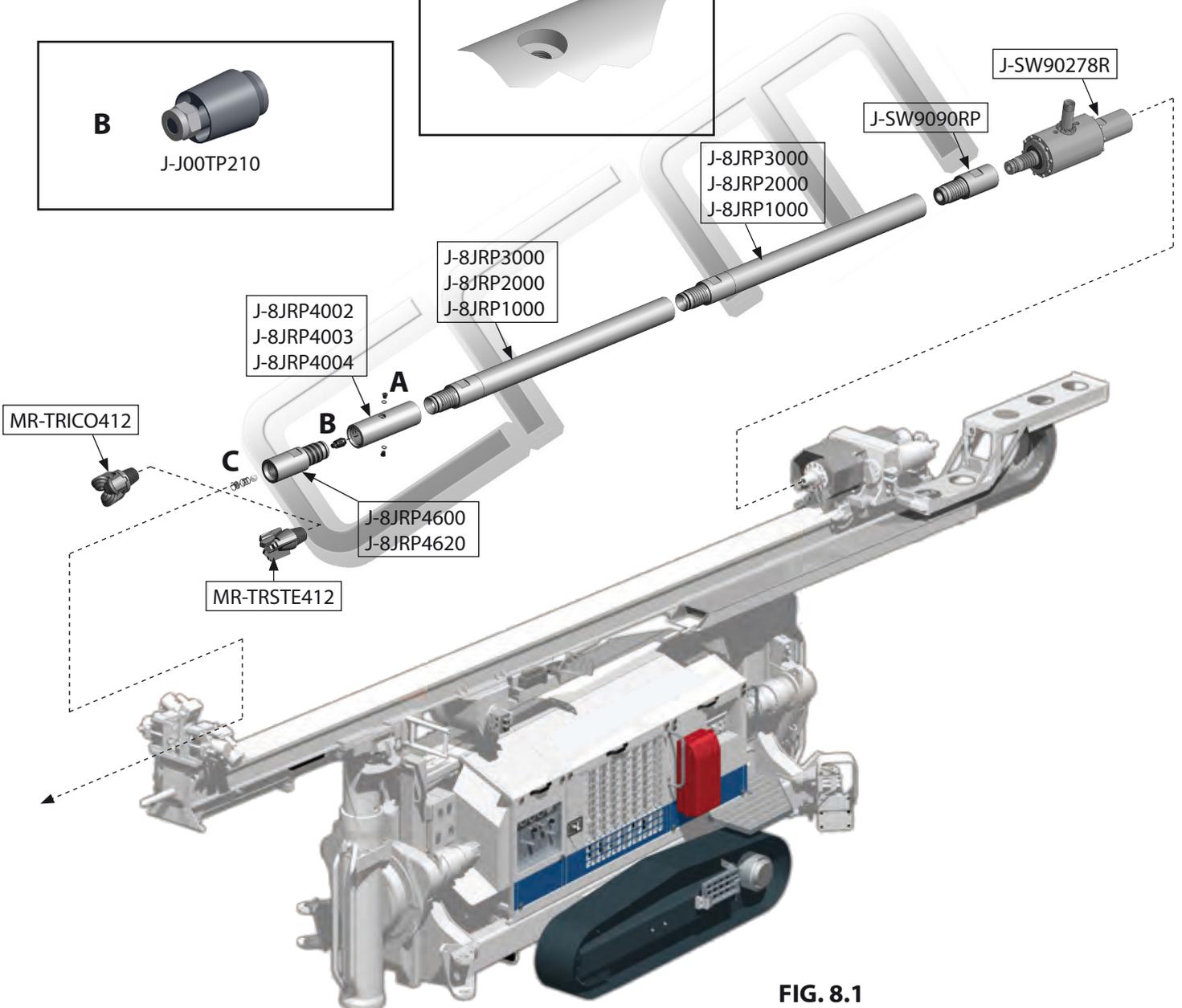
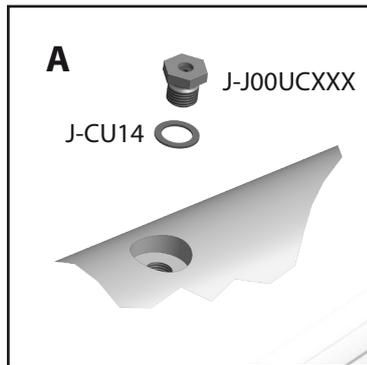
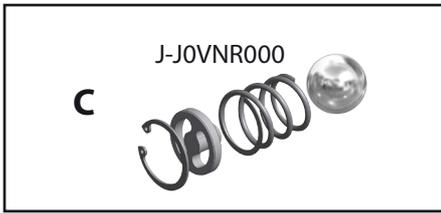


FIG. 8.1

8.2 D.114 JET RP FOR TUNNELLING

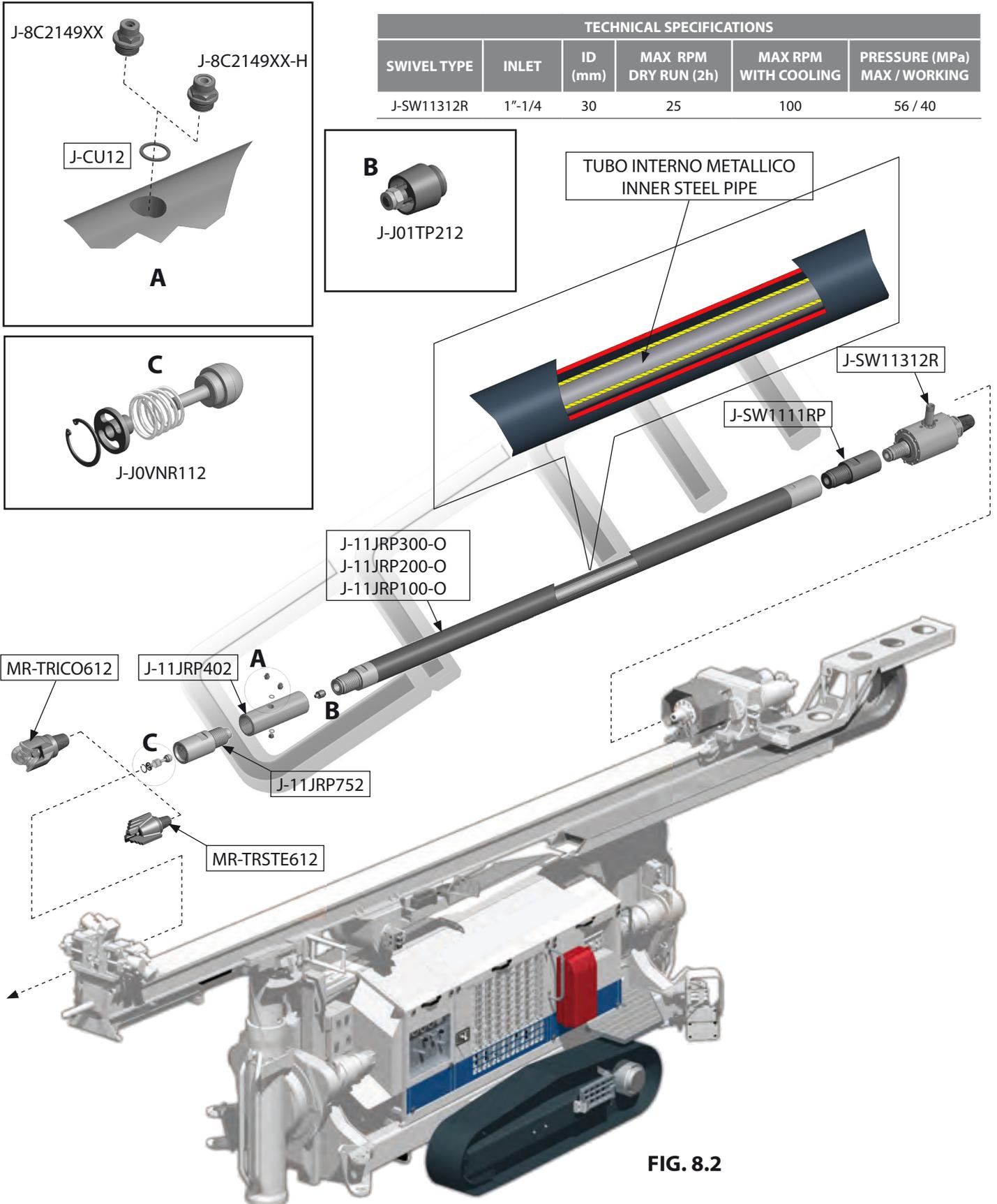


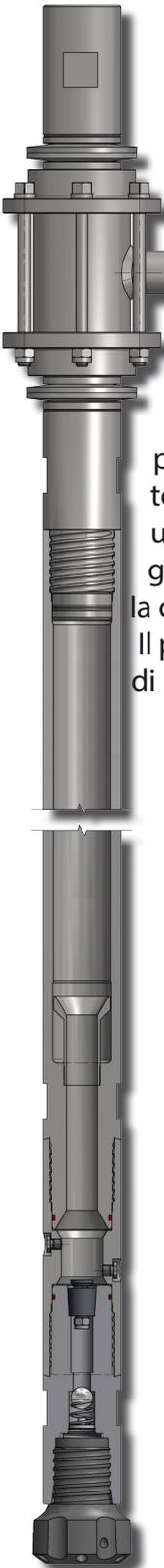
FIG. 8.2



D.114 JET RP FOR TUNNELLING - REF. FIG. 8.2

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-SW11312R	SWIVEL 3"1/2 AR M/JETT	JET SWIVEL 3"1/2 AR M			60
J-SW1111RP	ADATT.SW114 JET/D.114 RP JET	D.114 JET-D.114 RP JET SWIVEL ADAPTER			7
00000000000000					
J-11JRP300-O	ASTA D.114X3000 JET RP	D.114 JET RP ROD L=3000			118
J-11JRP200-O	ASTA D.114X2000 JET RP	D.114 JET RP ROD L=2000			82
J-11JRP100-O	ASTA D.114X1000 JET RP	D.114 JET RP ROD L=1000			46
J-11JRP402	MONITOR D.114 JETT RP 2 VIE	2 WAYS D.114 JET RP NOZZLES HOLDER			15,5
J-11JRP752	PORTASCALP. D.114 JET RP 3"1/2 AR C/V NO RET	D.114 JET RP BIT ADAPT. Th. 3"-1/2 AR C/V.			14,5
J-JOVNR112	VALVOLA DI NON RITORNO COMPLETA D.114	COMPLETE NO RETURN VALVE D. 114			0,05
J-J01TP212	VALVOLA AUTOMATICA JET 120BAR	AUT. JET VALVE 120BAR			0,2
J-8C214920	UGELLO CEM. D. 2.0 C2	GROUT NOZZLE D. 2.0 C2			0,1
J-8C214925	UGELLO CEM. D. 2.5 C2	GROUT NOZZLE D. 2.5 C2			0,1
J-8C214930	UGELLO CEM. D. 3.0 C2	GROUT NOZZLE D. 3.0 C2			0,1
J-8C214935	UGELLO CEM. D. 3.5 C2	GROUT NOZZLE D. 3.5 C2			0,1
J-8C214940	UGELLO CEM. D. 4.0 C2	GROUT NOZZLE D. 4.0 C2			0,1
J-8C214945	UGELLO CEM. D. 4.5 C2	GROUT NOZZLE D. 4.5 C2			0,1
J-8C214950	UGELLO CEM. D. 5.0 C2	GROUT NOZZLE D. 5.0 C2			0,1
J-8C214955	UGELLO CEM. D. 5.5 C2	GROUT NOZZLE D. 5.5 C2			0,1
J-8C214960-H	UGELLO CEM. D. 6.0 C2 HEAVY DUTY	GROUT NOZZLE D. 6.0 HEAVY DUTY			0,12
J-8C214963-H	UGELLO CEM. D. 6.3 C2 HEAVY DUTY	GROUT NOZZLE D. 6.3 HEAVY DUTY			0,12
J-8C214965-H	UGELLO CEM. D. 6.5 C2 HEAVY DUTY	GROUT NOZZLE D. 6.5 HEAVY DUTY			0,12
J-8C214967-H	UGELLO CEM. D. 6.7 C2 HEAVY DUTY	GROUT NOZZLE D. 6.7 HEAVY DUTY			0,12
J-8C214970-H	UGELLO CEM. D. 7.0 C2 HEAVY DUTY	GROUT NOZZLE D. 7.0 C2 HEAVY DUTY			0,12
J-8C214975-H	UGELLO CEM. D. 7.5 C2 HEAVY-DUTY	GROUT NOZZLE D. 7.5 C2 HEAVY DUTY			0,12
J-8C214980-H	UGELLO CEM. D. 8.0 C2 HEAVY DUTY	GROUT NOZZLE D. 8.0 C2 HEAVY DUTY			0,12
J-CU12	GUARN. RAME 1/2"	COPPER SEAL 1/2"			-
J-J33TB012	TAPPO M. 1/2" GAS EX INC	GROUT NOZZLE PLUG 1/2"			0,1
J-SW11312R-S	KIT RICAMBI SWIVEL JET SOTTO TESTA J-SW11	J-SW11 UNDER ROTARY SW. SPARE PARTS			-
J-SW11312R-K	KIT GUARN. SWIVEL SOTTO TESTA J-SW11	J-SW11 UNDER ROTARY SW. SEALS KIT			-
J-11JRP311	KIT GUARN. ASTA D.114 JET RP	D.114 JET RP ROD SEALS KIT			-
00000000000000					
MR-TRIC0612	TRICONO D.6"1/2 L2 3"1/2 AR CONF.MEDIO DURE	D.6"1/2 L2 3"1/2 AR ROCK BIT			15
CLAWBIT612	CLAW-BIT D.6"1/2-165 3" 1/2 ARM	CLAW-BIT D.6"1/2-165 3" 1/2 ARM			12
J-TRH600J2	TRILAMA CHEVRON 6"-152 JET 1/2	CHEVRON DRAG BIT 6"-152 JET 1/2			10
J-TRS600J2	TRILAMA STEP D.6"-152 JET 1/2	STEP DRAG BIT D.6"-152 JET 1/2			8
238R312R-F/M	RID. 2" 3/8 A.R. F/M 3" 1/2 A.R.	2" 3/8 A.R. F/M 3" 1/2 A.R. ADAPTER			7,4
MR-TRSTE600	TRILAMA STEP D.6 2"3/8 AR	STEP DRAG BIT D.6 2"3/8 AR			8
MR-TRSTE600-H	TRILAMA 6" HEAVY DUTY CHEVRON 2"3/8 AR	6" H.-DUTY CHEVRON DRAG BIT 2"3/8 AR			10

9 JET ROTOPERCUSSIONE * ROTOPERCUSSION JETTING



Sistema di perforazione a rotoper-
 cussione. Il sistema può essere monofluido
 o bifluido.

Nel sistema monofluido si ottiene la
 simultanea disgregazione e consolida-
 mento del terreno tramite iniezione
 di cemento.

Nel sistema bifluido la di-
 sgregazione e il consolida-
 mento sono ottenute con
 iniezione simultanea di cemento e
 getto coassiale di aria. Gli ugelli sono
 progettati per creare uno schermo in-
 torno al getto di cemento che acquisisce
 una maggiore capacità di taglio ed e' in
 grado di ottenere maggiori diametri del-
 la colonna di terreno consolidato.

Il portaugelli (monitor) puo' essere
 dotato di uno o piu' ugelli.

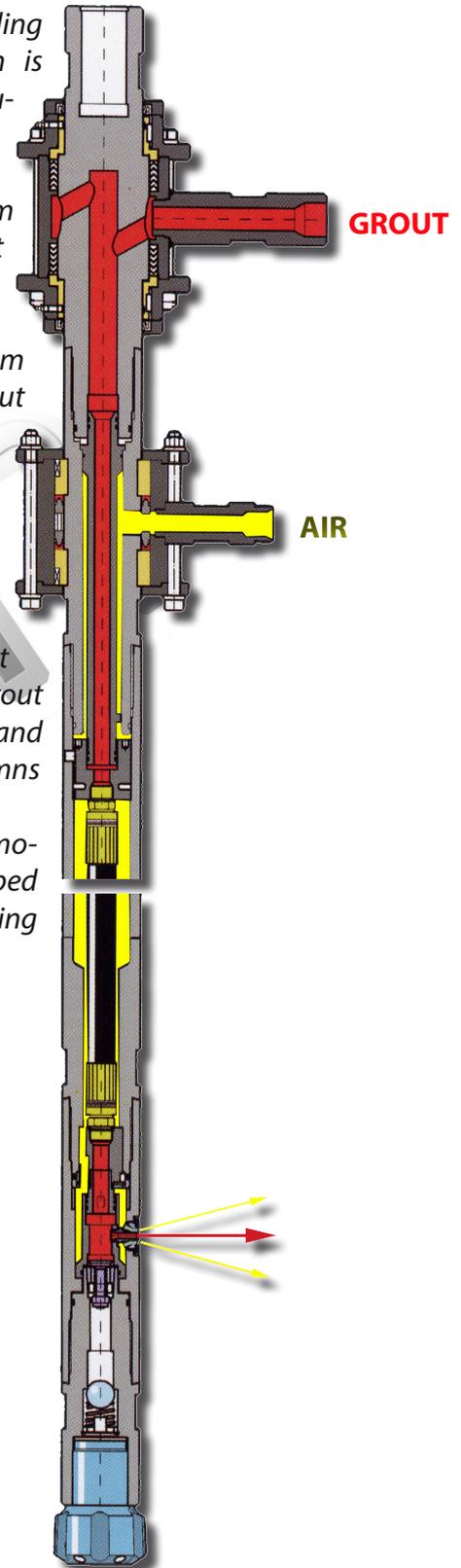


*Rotopercussion drilling
 system. This system is
 suitable for mono flu-
 id or double-fluid jet-
 ting.*

*In mono fluid system
 a jet of cement grout
 breaks-up and mi-
 xes the soil.*

*In double fluid system
 a jet of cement grout
 and air breaks-up
 and mixes the soil.
 The nozzles are de-
 signed so that the
 air-jet forms a shield
 all around the grout
 jet. This has the result
 of enhancing the grout
 jet cutting power and
 getting larger columns
 of consolidated soil.*

*The nozzles holder (mo-
 nitor) can be equip-
 ped with one or more
 jetting
 nozzles.*



SINGLE FLUID SYSTEM

DOUBLE FLUID SYSTEM

9.1 D.90 JET RP

TECHNICAL SPECIFICATIONS					
SWIVEL TYPE	INLET	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-8JRP5000	1"-1/4	32	30	60	56 / 40
J-8JRP5D60	1"-1/4	20	30	60	56 / 40

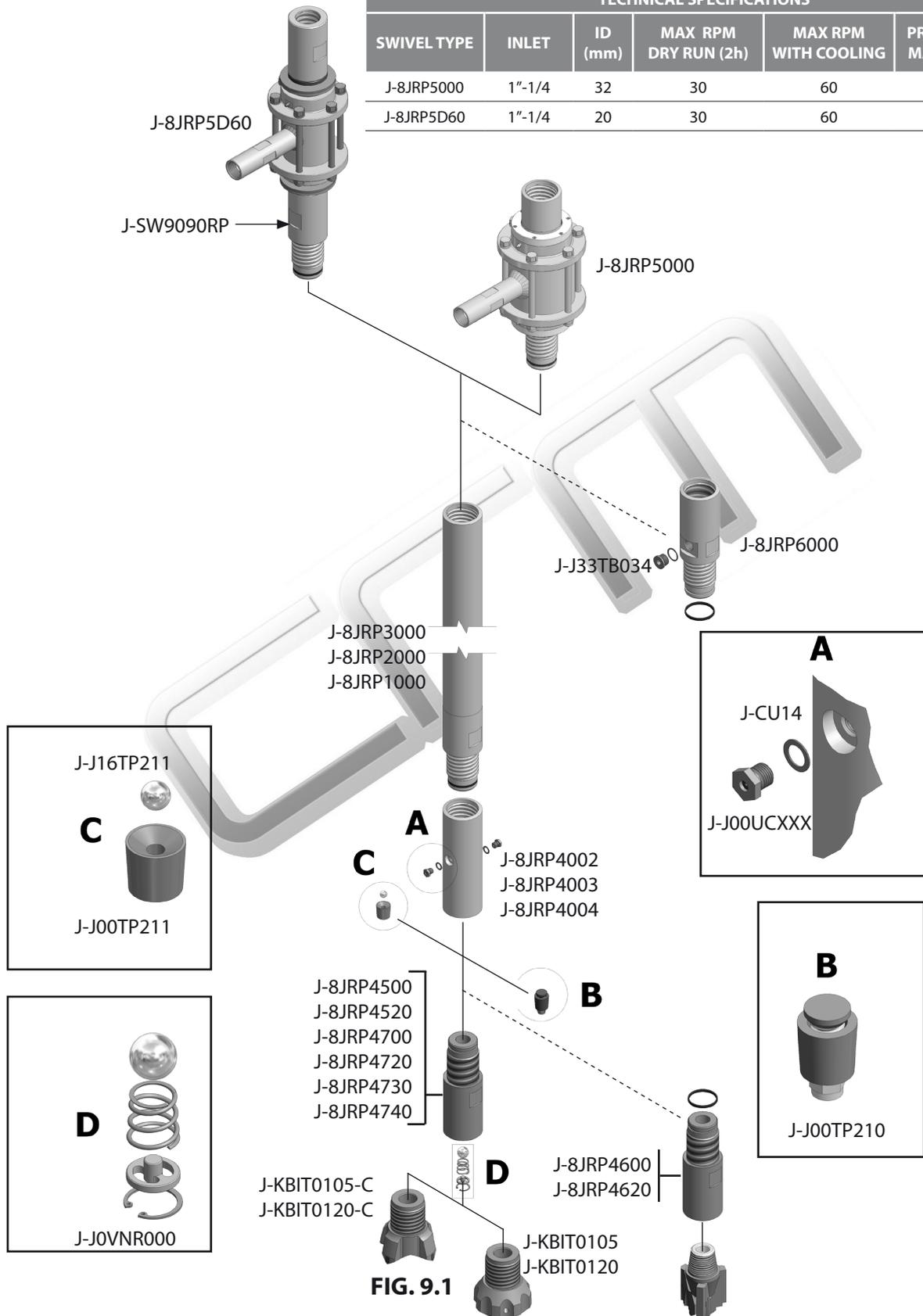


FIG. 9.1



D.90 JET RP - REF. FIG. 9.1

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-8JRP5D60	TESTA A.P. R.P. 65rpm MAX	H.P. SWIVEL R.P. 65rpm MAX			43
J-SW9090RP	RID. TESTA J-SW90 F/M 90 JET R.P.	J-SW90 F/M 90 JET RP ADAPTER			7
J-8JRP5000	TESTA A.P. D. 90 JET RP	H.P. SWIVEL D. 90 JET R.P.			42
00000000000000					
J-8JRP3000	ASTA D. 90X3000 JET R.P.	ROD D. 90X3000 JET R.P.			73
J-8JRP2000	ASTA D. 90X2000 JET R.P.	ROD D. 90X2000 JET R.P.			50
J-8JRP1000	ASTA D. 90X1000 JET R.P.	ROD D. 90X1000 JET R.P.			27
J-8JRP4002	MONITOR D. 90 JET R.P. 2 UGELLI	NOZZLE HOLDER D. 90 JET R.P. JET 2 NOZ.			6,4
J-8JRP4003	MONITOR D. 90 JET R.P. 3 UGELLI	NOZZLE HOLDER D. 90 JET R.P. JET 3 NOZ.			7
J-8JRP4004	MONITOR D. 90 JET R.P. 4 UGELLI	NOZZLE HOLDER D. 90 JET R.P. JET 4 NOZ.			7,8
J-8JRP4500	PORTASCALPELLO D. 90 JET R.P. Fil. 64	BIT ADAPTER D. 90 JET R.P. Th. D. 64			7,7
J-8JRP4520	PORTASCALPELLO D. 90 JET R.P. Fil. 78	BIT ADAPTER D. 90 JET R.P. Th.D 78			7,7
J-8JRP4600	PORTASCALPELLO D. 90 JET R.P. 2"-3/8 AR	BIT ADAPTER D. 90 JET R.P. 2"-3/8 API REG.			7,7
J-8JRP4700	PORTASCALPELLO D. 90 JET R.P. Fil. 64 C/V	BIT ADAPTER 90 JET R.P. Th. D. 64 W/VALVE			7,7
J-8JRP4720	PORTASCALPELLO D. 90 JET R.P. Fil. 78 C/V	BIT ADAPT. 90 JET R.P. Th. D. 78 W/VALVE			7,7
J-8JRP4620	PORTASCALPELLO D. 90 JET R.P. 2" 3/8 AR C/V	BIT ADAPTER 90 JET R.P. 2" 3/8 AR W/VALVE			7,7
J-8JRP4730	PORTASCALPELLO D. 90 JET R.P. C/V D. 40 Fil. 64	BIT ADAPTER 90 JET R.P. Th. D. 64 W/VALVE			7,7
J-8JRP4740	PORTASCALPELLO D. 90 JET R.P. C/V D. 40 Fil. 78	BIT ADAPTER 90 JET R.P. Th. D.78 W/VALVE			7,7
J-J00UC180	UGELLO JET D. 1.8	JET NOZZLE D. 1.8			0,02
J-J00UC200	UGELLO JET D. 2.0	JET NOZZLE D. 2.0			0,02
J-J00UC220	UGELLO JET D. 2.2	JET NOZZLE D. 2.2			0,02
J-J00UC250	UGELLO JET D. 2.5	JET NOZZLE D. 2.5			0,02
J-J00UC300	UGELLO JET D. 3.0	JET NOZZLE D. 3.0			0,02
J-J00UC350	UGELLO JET D. 3.5	JET NOZZLE D. 3.5			0,02
J-J00UC400	UGELLO JET D. 4.0	JET NOZZLE D. 4.0			0,02
J-CU14	GUARN. UGELLO 1/4"	NOZZLE COPPER SEAL D. 1/4"			-
J-8JRP6000	DISPOSITIVO INSER. BIGLIA D. 90	BALL IN-LET DEVICE D. 90			7
J-J33TB034	TAPPO M. 3/4 PER BIGLIA (EX INCASSATO)	3/4 BALL HOUSING PLUG			0,2
J-J00TP211	PORTA BIGLIA D. 11	BALL HOUSING D. 11			0,15
J-J16TP211	BIGLIA D. 16	STELL BALL D. 16			0,02
J-J00TP210	VALVOLA AUT. JET 100BAR	JET CHECK VALVE 100BAR			0,25
J-KBIT0105	BIT D. 105 A BOTTONI D. 64	BUTTON BIT D. 105 D. 64			5
J-KBIT0105-C	BIT D. 105 R.P. A CROCE	CROSS BIT D. 105			5
J-KBIT0120	BIT D. 120 A BOTTONI Fil. 78	BUTTON BIT Th. 78			9
J-KBIT0120-C	BIT D. 120 R.P. A CROCE Fil. 78	CROSS BIT D. 120 Th. 78			9
00000000000000					
J-8JRP5D60-K	KIT GUARN. TESTA SOFT R.P.	SWIVEL SEAL KIT			-
J-8JRP5002	KIT GUARN. TESTA A.P. R.P.	R.P. H.P. SWIVEL SEAL KIT			-
J-8JRP3001	KIT GUARN. ASTA D. 88.9 JET	D. 90 R.P. JET ROD SEAL KIT			-

9.2 D.114 JET RP



J-SW1111RP

TECHNICAL SPECIFICATIONS					
SWIVEL TYPE	INLET	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-11JRP90	1"-1/2	50	30	40	56 / 40
J-11JRPC90					
J-SW11312R	1"-1/4	30	25	100	56 / 40

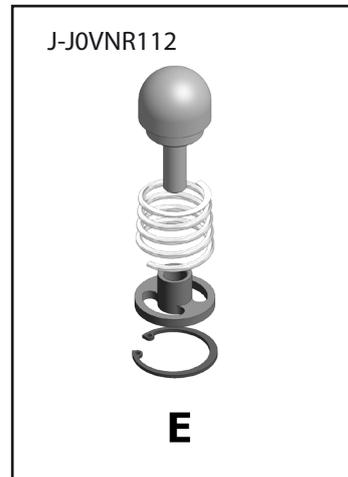
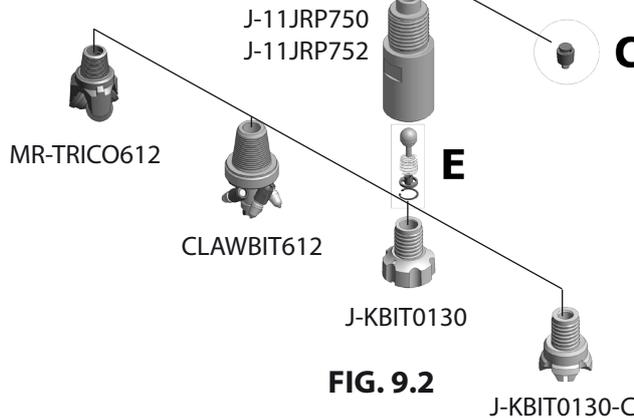
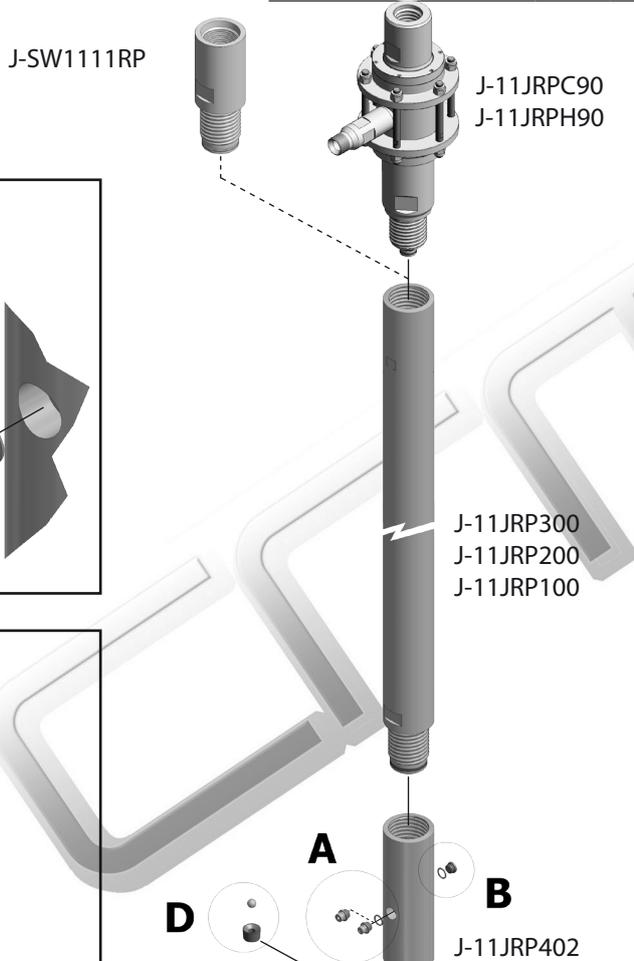
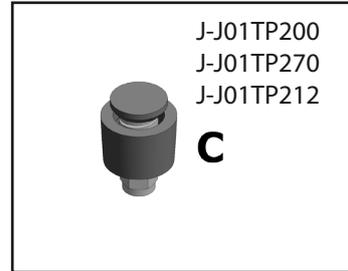
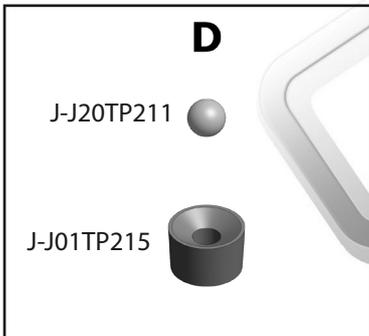
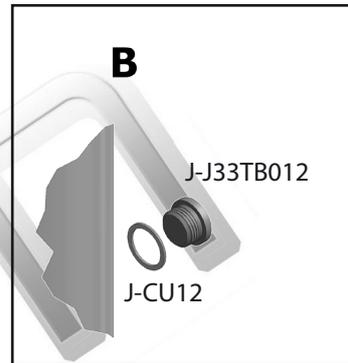
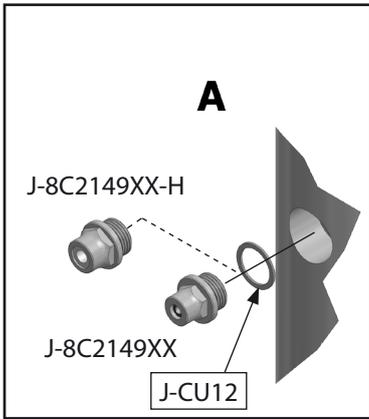
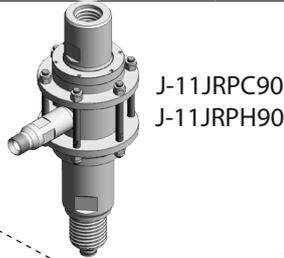


FIG. 9.2

9.3 D.114 C2 RP

TECHNICAL SPECIFICATIONS						
SWIVEL TYPE	INLET	FLUID TYPE	ID (mm)	MAX RPM DRY RUN (2h)	MAX RPM WITH COOLING	PRESSURE (MPa) MAX / WORKING
J-SWC20C64	1"-1/2	GROUT	25	30	40	56 / 40
		AIR	43 De			3 / 2,4
J-SWC2312R	1"-1/4	GROUT	30	30	100	56 / 40
		AIR	55 De			3 / 2,4

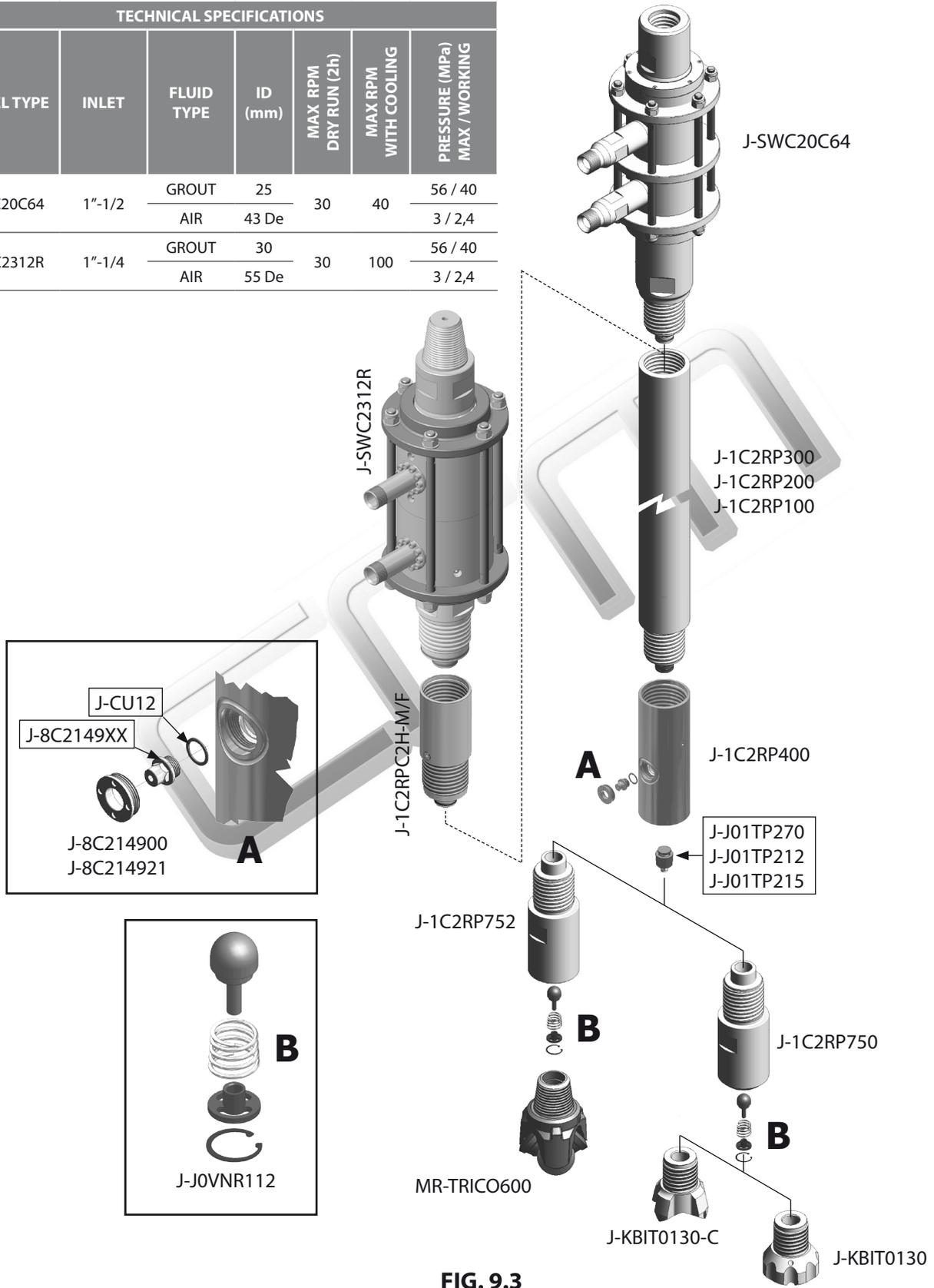


FIG. 9.3



D.114 C2 RP- REF. FIG. 9.3

CODICE CODE	DESCRIZIONE	DESCRIPTION	EURO/CAD EURO/EACH	% SC. % DISC.	PESO WEIGHT
J-SWC20C64	SWIVEL C2 RP C64 DX	SWIVEL C2 RP C64 DX			107
J-SWC2312R	SWIVEL C2 JET/3"1/2 ARM	SWIVEL C2 JET/3"1/2 ARM			100
J-1C2RPC2H-M/F	RID. D.114 C2 RP M/F D.114 C2H	D.114 C2 RP M/F D.114 C2H ADAPTER			12
		◊◊◊◊◊◊◊◊◊◊◊◊◊◊◊◊◊◊◊◊◊◊			
J-1C2RP300	ASTA D.114X3000 C2 RP 1" 1/4	ROD D.114X3000 C2 RP 1" 1/4			97
J-1C2RP200	ASTA D.114X2000 C2 RP 1" 1/4	ROD D.114X2000 C2 RP 1" 1/4			69
J-1C2RP100	ASTA D.114X1000 C2 RP 1" 1/4	ROD D.114X1000 C2 RP 1" 1/4			41
J-1C2RP400	MONITOR D.114 C2 RP N.1 UGELLO	ONE NOZZLE MONITOR D.114 C2 RP			15
J-1C2RP750	PORTASCALPELLO D.114 C2 RP FILETTO BIT D.78	D.114 C2 RP BIT ADAPTER TH. D.78			13,5
J-1C2RP752	PORTASCALP. D.114 C2 RP FILETTO F 3"1/2 AR	D.114 C2 RP BIT ADAPTER TH. F 3"1/2 AR			14,5
J-J01TP270	VALVOLA AUTOMATICA JET 70 BAR (D.114)	CHECK VALVE JET 70 BAR (D.114)			0,2
J-J01TP212	VALVOLA AUTOMATICA JET 120 BAR (D.114)	CHECK VALVE JET 120 BAR (D.114)			0,25
J-J01TP215	PORTA BIGLIA D.15 (D.114)	BALL HOUSING D.15 (D.114)			0,15
J-8C214920	UGELLO CEM. D.2.0 C2	GROUT NOZZLE D.2.0 C2			0,1
J-8C214925	UGELLO CEM. D.2.5 C2	GROUT NOZZLE D.2.5 C2			0,1
J-8C214930	UGELLO CEM. D.3.0 C2	GROUT NOZZLE D.3.0 C2			0,1
J-8C214935	UGELLO CEM. D.3.5 C2	GROUT NOZZLE D.3.5 C2			0,1
J-8C214940	UGELLO CEM. D.4.0 C2	GROUT NOZZLE D.4.0 C2			0,1
J-8C214945	UGELLO CEM. D.4.5 C2	GROUT NOZZLE D.4.5 C2			0,1
J-8C214950	UGELLO CEM. D.5.0 C2	GROUT NOZZLE D.5.0 C2			0,1
J-8C214955	UGELLO CEM. D.5.5 C2	GROUT NOZZLE D.5.5 C2			0,1
J-8C214960-H	UGELLO CEM. D.6.0 C2 HEAVY-DUTY	GROUT NOZZLE D.6.0 C2 HEAVY-DUTY			0,12
J-8C214963-H	UGELLO CEM. D.6.3 C2 HEAVY-DUTY	GROUT NOZZLE D.6.3 C2 HEAVY-DUTY			0,12
J-8C214965-H	UGELLO CEM. D.6.5 C2 HEAVY-DUTY	GROUT NOZZLE D.6.5 C2 HEAVY-DUTY			0,12
J-8C214967-H	UGELLO CEM. D.6.7 C2 HEAVY-DUTY	GROUT NOZZLE D.6.7 C2 HEAVY-DUTY			0,12
J-8C214970-H	UGELLO CEM. D.7.0 C2 HEAVY-DUTY	GROUT NOZZLE D.7.0 C2 HEAVY-DUTY			0,12
J-8C214975-H	UGELLO CEM. D.7.5 C2 HEAVY-DUTY	GROUT NOZZLE D.7.5 C2 HEAVY-DUTY			0,12
J-8C214980-H	UGELLO CEM. D.8.0 C2 HEAVY-DUTY	GROUT NOZZLE D.8.0 C2 HEAVY-DUTY			0,12
J-CU12	GUARNIZIONE UGELLO CEMENTO D.1/2"	GROUT NOZZLE SEAL D.1/2"			-
J-J33TB012	TAPPO M. 1/2" GAS EX INC	M. PLUG 1/2" GAS EX INC			0,1
J-8C214900	UGELLO ARIA D.23 C2	AIR NOZZLE D.23 C2			0,05
J-8C214921	UGELLO ARIA D.21 C2	AIR NOZZLE D.21 C2			0,05
J-8C214901	CHIAVE UGELLO ARIA 8C214900	8C214900 AIR NOZZLE REMOVING TOOL			0,15
J-8C21490T	TAPPO M 1"1/4 UGELLO ARIA	1"1/4 AIR NOZZLE M. PLUG			0,06
J-KBIT0130	BIT D.130 A BOTTONI FIL 78	BUTTON BIT D.130 D.78 THREAD			7
J-KBIT0130-C	BIT D.130 A CROCE FIL 78	CROSS BIT D.130 D.78 THREAD			6
MR-TRIC0600	TRICONO D.6" L2 IADC311 3"1/2 ARM	D.6" L2 IADC311 3"1/2 ARM ROCK BIT			9
J-1C2RP311	KIT GUARN. ASTA D.114 C2RP	ROD SEALS KIT D.114 C2RP			-
J-1C2RP404	KIT GUARN. MONITOR D.114 C2 RP	MONITOR SEALS KIT D.114 C2 RP			-
J-SWC20C64-A	KIT GUARN. SW JETT C2 RP	SWIVEL SEALS KIT JET C2 RP			-
J-SWC2312R-A	KIT RICAMBI SWIVEL SOTTO TESTA C2 JET	C2 JET UNDER ROTARY SW. SPARE PARTS			-
J-SWC2312R-B	KIT GUARNIZIONI SWIVEL SOTTO TESTA C2 JET	C2 JET UNDER ROTARY SW. SEALS KIT			-

10 JET GROUTING WITH DEVIATION MEASUREMENT

Nel Jet Grouting è molto importante conoscere l'esatta posizione della colonna di cemento, specialmente quando si tratta di impermeabilizzazioni del terreno e non ci deve essere distanza tra le varie colonne.

In questo capitolo si forniscono le indicazioni su quali adattatori sono necessari per assemblare il TIGOR BIJET di Jean Lutz sul sistema bifluido CRM.

In jet grouting it is very important knowing the real position of the grout column, especially when jet grouting is used for soil impermeabilization and there must not be gaps between columns.

In this chapter we give indications on which adapters you need for assembling TIGOR BIJET by JeanLutz on CRM double fluid system.

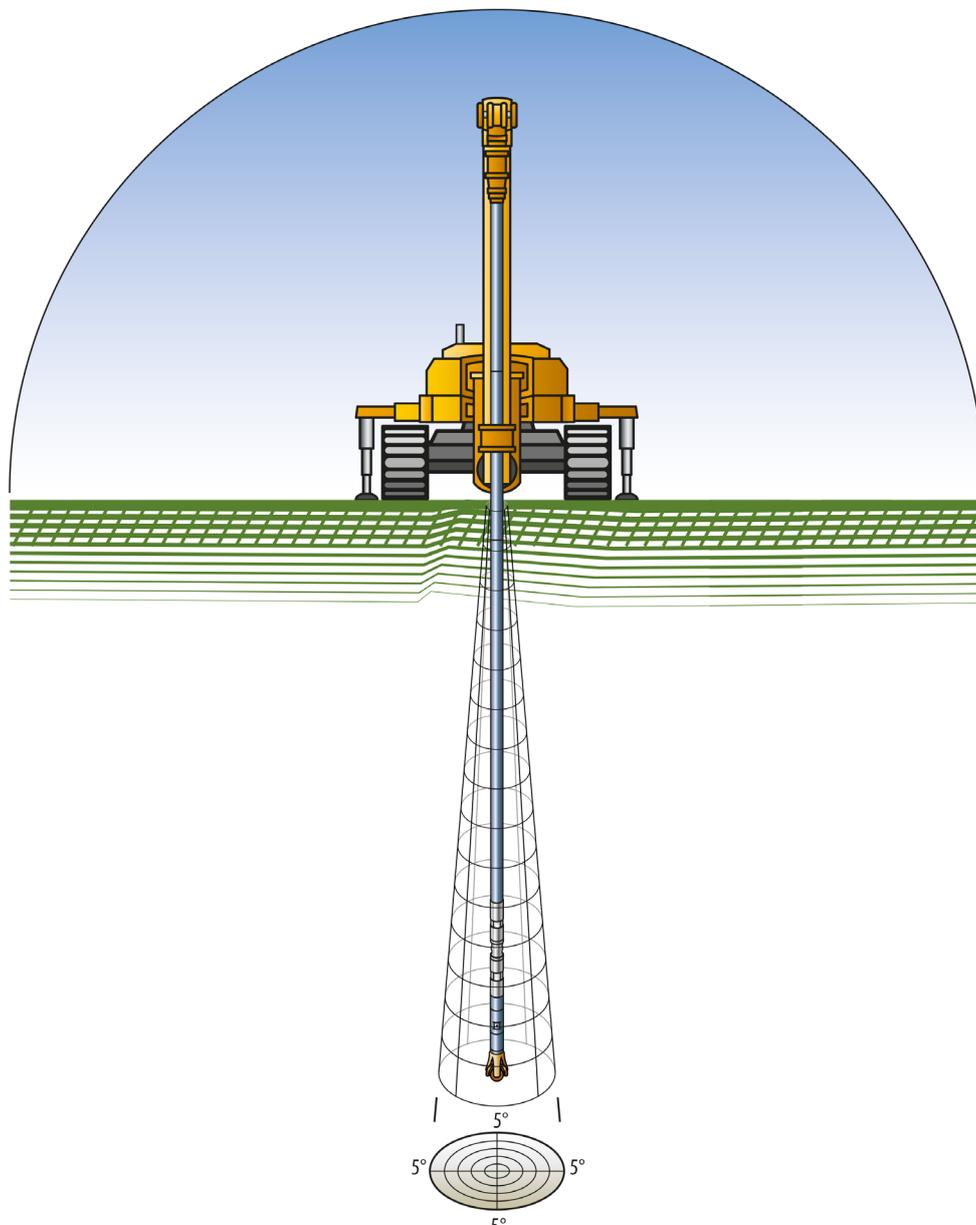


Figure courtesy of Jean Lutz

10.1 D.114 C2 SYSTEM WITH TIGOR BIJET D.127

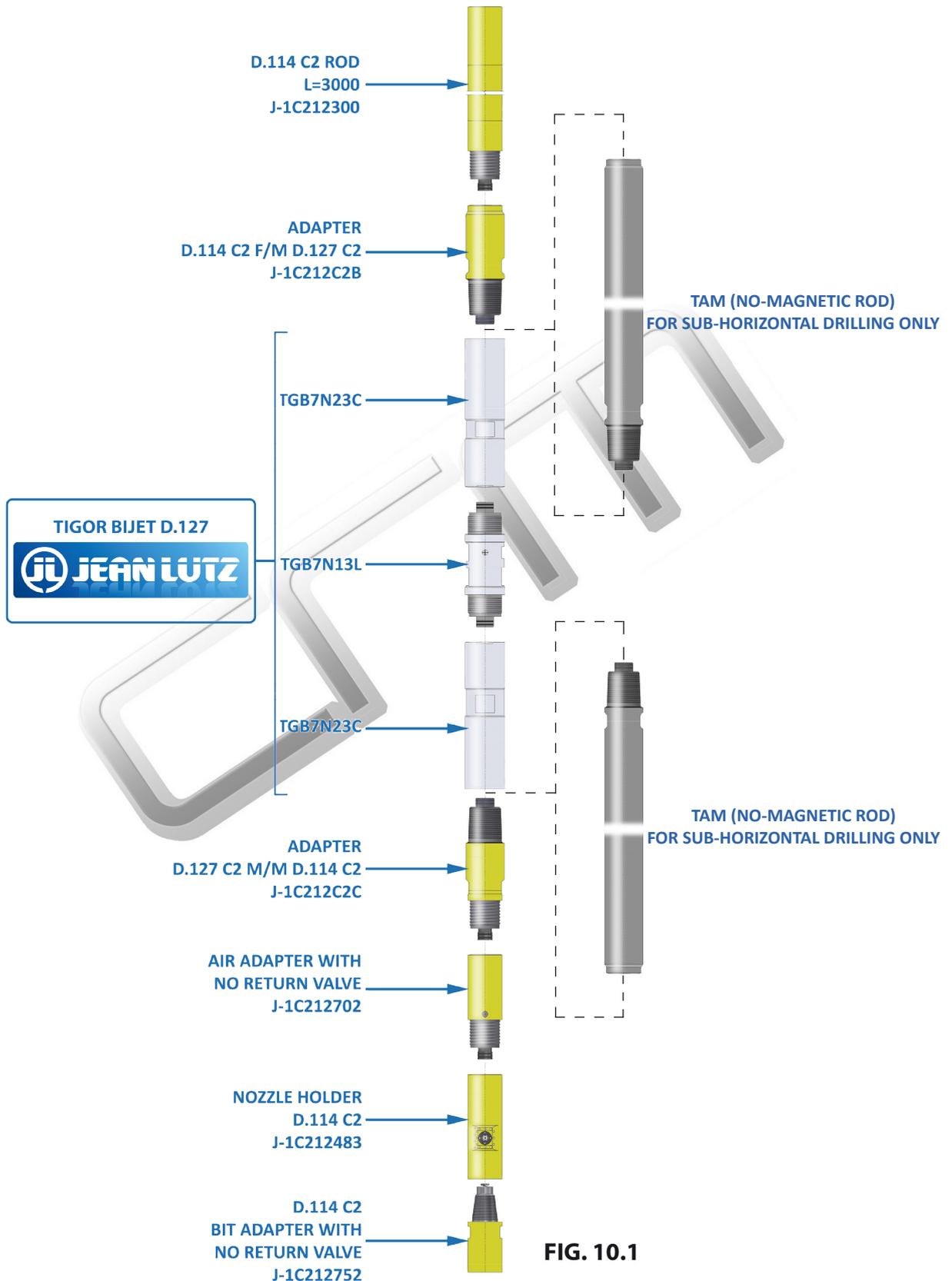


FIG. 10.1

10.2 D.127 C2 SYSTEM WITH TIGOR BIJET D.127

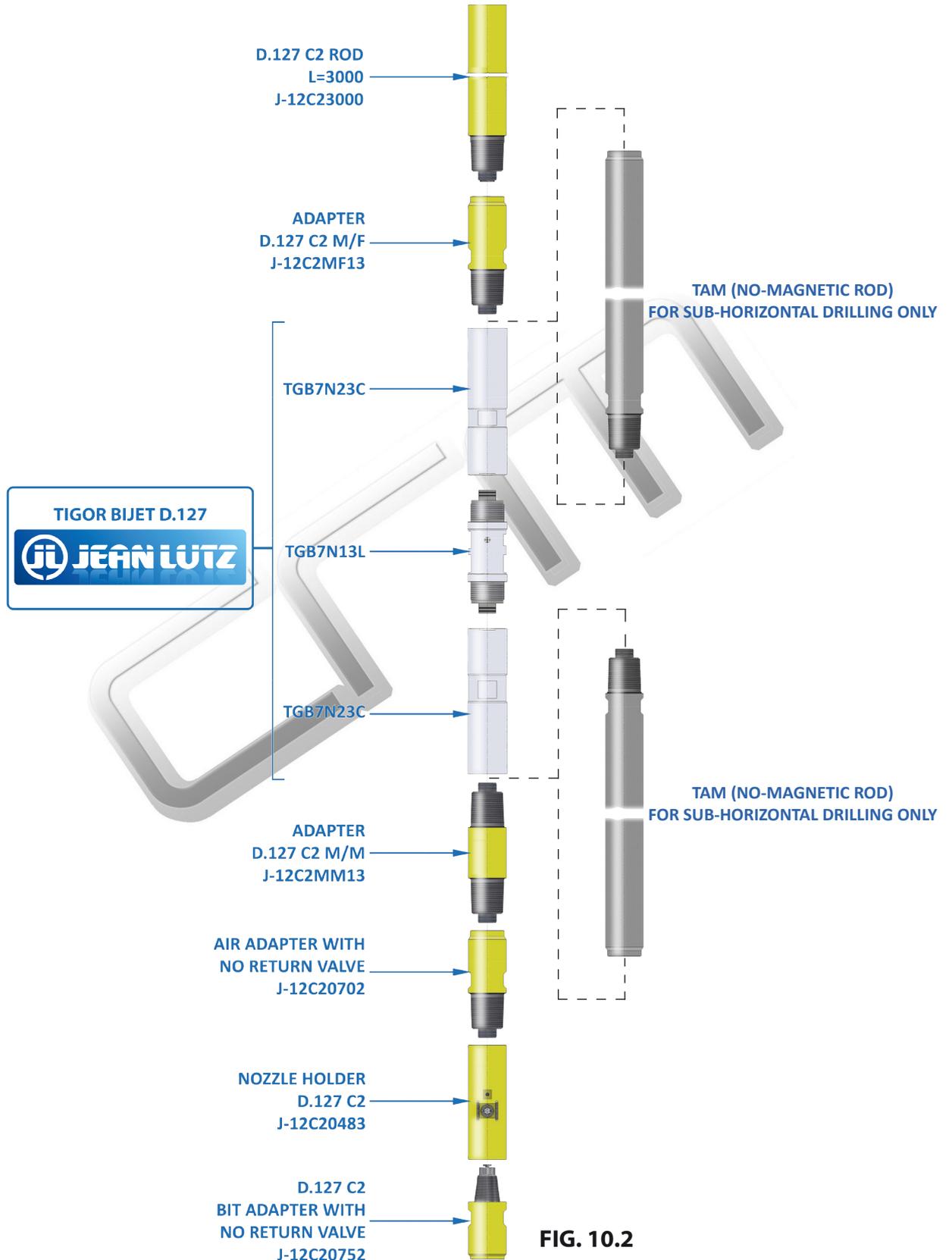


FIG. 10.2



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Certificato N° IT00/0007