

2024

Thru-Tubing Tools Catalog

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MISSION

We will provide superior products and services to operate a vigorous, growing, diversified, and profitable business in the balance best interest of our customers, employees, shareholders and suppliers.

PHILOSOPHY

In our commitment to excellence, we will:

- Provide our Customers with only the highest quality products and services that meet their needs through a common sense approach to research and development that serves to add value from us as a supplier.
- Provide a system of Employee involvement, motivation and training.
- Commit to long-term growth and profitability to fulfill Shareholder expectations.
- Maintain and encourage Supplier involvement in all phases of product and service development.
- Provide a system of Continuous Improvement in business, products and services processes that add value to our customer.



CONTENT

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| Size specifications for tools |
|--|
| Coil Connectors |
| MHA (Motor Head Assembly) Check Valves, Circulation Sub, Hydraulic |
| SRT-G2 Motors Technology |
| AV (Annular Velocity) By-Pass Sub |
| Bit Diverter Sub |
| Rotational & Non-Rotational Wash Tool |
| Centralizers |
| "Slammer" ® Impact Hammer |
| Torque – Thru knuckle Joint |
| Locking Swivel Joint |
| Weight Bars |
| Hydraulic "GS" Pulling Tools |
| "Power-Maxx"™ Jar |
| Contacts |



Phone: 337-837-1062

Thru-Tubing Tool Catalog - 2022

| COIL CONNECTOR PULL (TENSION) PLATES | | | | |
|--------------------------------------|--|------------------------------|---------------|------------|
| O.D. | Part Number | PARTS DESCRIPTION | Coil Dia. | Threads |
| 1.500 | CT-PP-1012 | Pull Plate, 5.50" Base w/NPT | 1.00"-1-1/4" | 3/4" MT |
| 1.700 | CT-PP-1001-1 | Pull Plate, 5.50" Base w/NPT | 1.00"-1-1/4" | 1.00" MT |
| 2.360 | CT-PP-1011 | Pull Plate, 5.50" Base w/NPT | 1-1/4" | 1.50" MT |
| 2.950 | CT-PP-1003 | Pull Plate, 8.00" Base w/NPT | 2.00"-2-3/8" | 2-3/8" PAC |
| 3.125 | CT-PP-1009 | Pull Plate, 8.00" Base w/NPT | 2-3/8"-2-7/8" | 2-3/8" Reg |
| Noto | Note: Available with alternate connections. Needle value cold concretaly | | | |

Note: Available with alternate connections. Needle valve sold separately.

| EXTERNAL SLIP COIL | _ CONNECTORS | | | |
|--------------------|---------------------|---|-----------------|-----------------------|
| 0.D. | Part Number | PARTS DESCRIPTION | Coil Dia. | Threads |
| 1.687 | 100CTC169A | 1.00" Coil Connector Assy | 1.00" | 1.00"MT/CS |
| 1.687 | 125CTC169A | 1.25" Coil Connector Assy | 1-1/4" | 1.00"MT/CS |
| 1.850 | 125CTC185A | 1.25" Coil Connector Assy | 1-1/4" | 1.00"/1.25" CS |
| 2.125 | 125CTC212A | 1.25" Coil Connector Assy | 1-1/4" | 1.25" CS/1.50" MT |
| 3.170 | 125CTC317 | 1.25" Coil Connector Assy | 1-1/4" | 1502 Union |
| 1.930 | 150CTC193 | 1.50" Coil Connector Assy-SL | 1-1/2" | 1.00" MT/CS,1.25" CS |
| 2.120 | 150CTC212 | 1.50" Coil Connector Assy | 1-1/2" | 1.25" CS/1.50" MT |
| 2.875 | 150CTC287 | 1.50" Coil Connector Assy | 1-1/2" | 2-3/8" PAC |
| 3.170 | 150CTC317 | 1.50" Coil Connector Assy | 1-1/2" | 1502 Union |
| 2.180 | 175CTC218 | 1.75" Coil Connector Assy-SL | 1-3/4" | 1.25" CS/1.50" MT |
| 2.875 | 175CTC287 | 1.75" Coil Connector Assy | 1-3/4" | 2-3/8" PAC |
| 2.875 | 200CTC287 | 2.00" Coil Connector Assy | 2.00" | 2-3/8" PAC |
| 2.906 | 200CTC294 | 2.00" Coil Connector Assy | 2.00" | 2-3/8" PH-6 |
| 3.060 | 200CTC306 | 2.00" Coil Connector Assy | 2.00" | 2-3/8" EUE 8-Rd |
| 3.125 | 200CTC312 | 2.00" Coil Connector Assy | 2.00" | 2-3/8" API Reg |
| 3.170 | 200CTC317 | 2.00" Coil Connector Assy | 2.00" | 1502 Union |
| 3.125 | 237CTC312 | 2-3/8" Coil Connector Assy-SL | 2-3/8" | 2-3/8" PAC/REG |
| 3.250 | 237CTC325 | 2-3/8" Coil Connector Assy | 2-3/8" | 2-3/8" PAC/REG |
| 3.375 | 262CTC338 | 2-5/8" Coil Connector Assy-SL | 2-5/8" | 2-3/8" PAC/REG/8-RD |
| 3.500 | 262CTC350 | 2-5/8" Coil Connector Assy | 2-5/8" | 2-3/8" PAC/REG/8-RD |
| Noto | · Alternate connect | ion and O.D.'s available upon request. Also | hottom subs ava | ilable with cotocrows |

Note: Alternate connection and O.D.'s available upon request. Also, bottom subs available with setscrews.

| EXTERNAL DIMPLE | COIL CONNECTORS/I | DIMPLE INSTALLATION TOOLS | | |
|-----------------|---|---------------------------------|-----------|------------|
| 0.D. | Part Number | PARTS DESCRIPTION | Coil Dia. | Threads |
| 1.688 | 125EDC168-01 | 1.25" External Dimple Connector | 1-1/4" | 1.00" MT |
| N/A | 125EDC-DCT-01 | 1.25" Dimple Setting Tool | 1-1/4" | N/A |
| 2.125 | 150EDC212-01 | 1.50" External Dimple Connector | 1-1/2" | 1.50" MT |
| N/A | 150EDC-DCT-01 | 1.50" Dimple Setting Tool | 1-1/2" | N/A |
| 2.125 | 175EDC212-01 | 1.75" External Dimple Connector | 1-3/4" | 1.50" MT |
| 2.875 | 175EDC287-01 | 1.75" External Dimple Connector | 1-3/4" | 2-3/8" PAC |
| N/A | 175EDC-DCT-01 | 1.75" Dimple Setting Tool | 1-3/4" | N/A |
| 2.875 | 200EDC287-01 | 2.00" External Dimple Connector | 2.00" | 2-3/8" PAC |
| N/A | 200EDC-DCT-01 | 1.75" Dimple Setting Tool | 2.00" | N/A |
| 2.875 | 238EDC287-01 | 2.38" External Dimple Connector | 2-3/8" | 2-3/8" |
| 3.125 | 238EDC312-01 | 2.38" External Dimple Connector | 2-3/8" | 2-3/8" Reg |
| N/A | 238EDC-DCT-01 | 2.38" Dimple Setting Too | 2-3/8" | N/A |
| 3.250 | 262EDC325 | 2.62" External Dimple Connector | 2-5/8" | 2-3/8" Reg |
| N/A | 262EDC-DCT-01 | 2.62" Dimple Setting Tool | 2-5/8" | N/A |
| Note | Note: Alternate connection and O.D.'s available upon request. | | | |

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Thru-Tubing Tool Catalog - 2022

| IES (Internal/External-Sleeved) DIMPLE CONNECTOR ASSEMBLY/DIMPLE INSTALLATION TOOL | | | | |
|--|---------------|----------------------------|-----------|------------|
| 0.D. | Part Number | PARTS DESCRIPTION | Coil Dia. | Threads |
| 2.875 | 200IES287-XXX | 2.00" IES Dimple Connector | 2.00" | 2-3/8" PAC |
| N/A | 200IES-DCT-01 | 2.00" Dimple Setting Tool | 2.00" | N/A |
| 3.125 | 238IES312-XXX | 2.38" IES Dimple Connector | 2-3/8" | 2-3/8" Reg |
| N/A | 238IES-DCT-01 | 2.00" Dimple Setting Too | 2.00" | N/A |
| 3.388 | 262IES312-XXX | 2.62" IES Dimple Connector | 2-5/8" | 2-3/8" Reg |
| N/A | 262IES-DCT-01 | 2.62" Dimple Setting Tool | 2.00" | N/A |
| | | | | |

Note: -XXX Represents coil wall thickness. Customer must specify coil wall thickness at time of order.

| INTERNAL SLIP COIL | CONNECTORS | | | |
|--------------------|--|---|-----------|----------|
| O.D. | Part Number | PARTS DESCRIPTION | Coil Dia. | Threads |
| 1.500 | 125ISC150-XXX | 1.25" Internal Slip Connector (.095134) | 1.25" | 3/4" MT |
| 1.500 | 150ISC150-XXX | 1.50" Internal Slip Connector (.095156) | 1.50" | 3/4" MT |
| 1.688 | 150ISC168-XXX | 1.50" Internal Slip Connector (.095156) | 1.50" | 3/4" MT |
| 1.750 | 175ISC175-XXX | 1.75" Internal Slip Connector (.109224) | 1.75" | 1.50" MT |
| 2.125 | 175ISC212-XXX | 1.75" Internal Slip Connector (.109224) | 1.75" | 1.50" MT |
| 2.000 | 200ISC200-XXX | 2.00" Internal Slip Connector (.116224) | 1.75" | 1.50" MT |
| 2.125 | 200ISC212-XXX | 2.00" Internal Slip Connector (.116224) | 1.75" | 1.50" MT |
| Note | Note: -XXX Represents coil wall thickness. Customer must specify coil wall thickness at time of order. | | | |

INTERNAL DIMPLE COIL CONNECTOR PARTS DESCRIPTION O.D. Part Number Coil Dia. Threads 1.688 125IDC168-XXX 1.25" Internal Dimple Connector 1-1/4" 1.00" MT 1.25" Dimple Setting Too 1-1/4" N/A 125IDC-DCT-01 N/A 150IDC168-XXX 1.50" Internal Dimple Connector 1-1/2" 1.00" MT 1.688 N/A 150IDC168-DCT-01 1.50" Dimple Setting Tool 1-1/2" N/A 2.125 175IDC212-XXX 1.75" Internal Dimple Connector 1-3/4" 1.50" MT N/A 175IDC212-DCT-01 1.75" Dimple Setting Tool 1-3/4" N/A 2.00" Internal Dimple Connector 2.125 200IDC212-XXX 2.00" 1.50" MT N/A 200IDC212-DCT-01 2.00" Dimple Setting Tool 2.00" N/A 2.875 200IDC288-XXX 2.00" Internal Dimple Connector 2.00" 2-3/8" PAC N/A 200IDC287-DCT-01 2.00" Dimple Setting Tool 2.00" N/A 2.388 238IDC238-XXX 2.38" Internal Dimple Connector 2-3/8" 1.50" MT N/A 238IDC238-DCT-01 2.00" Dimple Setting Too 2-3/8" N/A 2-3/8" PAC 2.875 238IDC288-XXX 2.38" Internal Dimple Connector 2-3/8" 238IDC288-DCT-01 2.38" Dimple Setting Tool 2-3/8" N/A N/A Note: -XXX Represents coil wall thickness. Customer must specify coil wall thickness at time of order.

| INTERNAL ROLL-ON COIL CONNECTORS | | | | |
|--|-------------|---------------------------------|-----------|----------|
| 0.D. | Part Number | PARTS DESCRIPTION | Coil Dia. | Threads |
| 1.250 | 125-ROC-XXX | 1.25" Internal Dimple Connector | 1.25" | 3/4" MT |
| 1.500 | 150-ROC-XXX | 1.50" Internal Dimple Connector | 1.50" | 3/4" MT |
| 1.750 | 175-ROC-XXX | 1.75" Internal Dimple Connector | 1.75" | 1.00" MT |
| N/A | ROC-Tool | 3-Wheel Roll-On Crimping Too | N/A | N/A |
| N/A | ROC-100 | Roll-On Crimping Wheel Set | All | N/A |
| Note: -XXX Represents coil wall thickness. Customer must specify coil wall thickness at time of order. | | | | |



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Thru-Tubing Tool Catalog - 2022

| WELD-ON COIL CO | NNECTORS | | | |
|--|---------------|-------------------------------|-----------|------------|
| 0.D. | Part Number | PARTS DESCRIPTION | Coil Dia. | Threads |
| 2.875 | 200WOC287-XXX | 2.00" Coil Weld-On Connectors | 2.00" | 2-3/8" PAC |
| 2.875 | 238WOC287-XXX | 2.38" Coil Weld-On Connectors | 2-3/8" | 2-3/8" Reg |
| 2.875 | 262WOC312-XXX | 2.62" Coil Weld-On Connectors | 2-5/8" | 2-3/8" Reg |
| Note: -XXX Represents coil wall thickness. Other connections available | | | | |

| EZ COIL SEAM REMO | OVAL TOOL | | | |
|--|-------------|------------------------------|-----------|---------|
| 0.D. | Part Number | PARTS DESCRIPTION | Tool Size | Threads |
| N/A | 125CSR-01 | 1.25" Coil Seam Removal Tool | 1.25" | N/A |
| N/A | 150CSR-01 | 1.50" Coil Seam Removal Tool | 1.50" | N/A |
| N/A | 175CSR-01 | 1.75" Coil Seam Removal Tool | 1.75" | N/A |
| Note: -XXX Represents coil wall thickness. Customer must specify coil wall thickness at time of order. | | | | |

| HD3 INTEGRATED MOTORHEAD ASSEMBLY (DFCV, HD3 Hydraulic Disconnect, Circulation Sub) | | | | |
|---|-------------|-------------------------|-----------|-------------------|
| O.D. | Part Number | PARTS DESCRIPTION | Tool Size | Threads |
| 1.688 | 168MHA3-XX | 1-11/16" MotorHead Assy | 1-11/16" | 1.00" MT/CS |
| 2.125 | 212MHA3-XX | 2-1/8" MotorHead Assy | 2-1/8" | 1.25" CS/1.50" MT |
| 2.875 | 287MHA3-XX | 2-7/8" MotorHead Assy | 2-7/8" | PAC/API Reg |

| HD4 MOTORHEAD ASSEMBLY (DFCV, HD4 Hydraulic Disconnect,Circulation Sub) | | | | |
|---|---|-----------------------------|-----------|-------------------|
| 0.D. | Part Number | PARTS DESCRIPTION | Tool Size | Threads |
| 1.500 | 150MHA4-XX | 1-1/2" HD4 MotorHead Assy | 1-1/2" | 3/4" MT |
| 1.687 | 168MHA4-XX | 1-11/16" HD4 MotorHead Assy | 1-11/16" | 1.00" MT/CS |
| 2.125 | 212MHA4-XX | 2-1/8" HD4 MotorHead Assy | 2-1/8" | 1.25" CS/1.50" MT |
| 2.875 | 287MHA4-XX | 2-7/8" HD4 MotorHead Assy | 2-7/8" | PAC/API Reg |
| 3.125 | 312MHA4-XX | 3-1/8" HD4 MotorHead Assy | 3-1/8" | PAC/API Reg |
| Note | Note: This MHA incorporates the our latest HD4 Disconnect with Inter-LOC system | | | |

| DUAL FLAPPER CHECK VALVES (2-Cartridges) | | | | |
|--|------------------------|--|--------------------|-------------------|
| 0.D. | Part Number | PARTS DESCRIPTION | Tool Size | Threads |
| 1.500 | 150DFV2-XX | 1-1/2" Dual Flapper Check Valve | 1-1/2" | 3/4" MT |
| 1.688 | 168DFV2-XX | 1-11/16" Dual Flapper Check Valve | 1-11/16" | 1.00" MT/CS |
| 2.125 | 212DFV2-XX | 2-1/8" Dual Flapper Check Valve | 2-1/8" | 1.25" CS/1.50" MT |
| 2.875 | 287DFV2-XX | 2-7/8" Dual Flapper Check Valve | 2-7/8" | 2-3/8" PAC |
| 3.125 | 312DFV2-XX | 3-1/8" Dual Flapper Check Valve | 3-1/8" | 2-3/8" API Reg |
| 3.388 | 338DFV2-XX | 3-3/8" Dual Flapper Check Valve | 3-3/8" | 2-3/8" API Reg |
| Note | : All cartridges are o | lesigned for low pressure viton seal and met | al to metal high p | pressure seal |

| QUAD FLAPPER CHECK VALVES (4-Cartridges) | | | | |
|---|-------------|---------------------------------|-----------|----------------|
| 0.D. | Part Number | PARTS DESCRIPTION | Tool Size | Threads |
| 2.875 | 287QFCV-XX | 2-7/8" Quad Flapper Check Valve | 2-7/8" | 2-3/8" PAC |
| 3.125 | 312QFCV-XX | 3-1/8" Quad Flapper Check Valve | 3-1/8" | 2-3/8" API Reg |
| Note: All cartridges are designed for low pressure viton seal and metal to metal high pressure seal | | | | |



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Thru-Tubing Tool Catalog - 2022

| HD4 "INTER-LOC" HYDRAULIC DISCONNECTS | | | | | |
|---------------------------------------|--|-----------------------------------|-----------|-------------------|--|
| 0.D. | Part Number | PARTS DESCRIPTION | Tool Size | Threads | |
| 1.500 | 150HD4-XX | 1-1/2" HD4 Hydraulic Disconnect | 1-1/2" | 3/4" MT | |
| 1.688 | 168HD4-XX | 1-11/16" HD4 Hydraulic Disconnect | 1-11/16" | 1.00" MT/CS | |
| 2.125 | 212HD4-XX | 2-1/8" HD4 Hydraulic Disconnect | 2-1/8" | 1.25" CS/1.50" MT | |
| 2.875 | 287HD4-XX | 2-7/8" HD4 Hydraulic Disconnect | 2-7/8" | PAC/API Reg | |
| 3.125 | 312HD4-XX | 3-1/8" HD4 Hydraulic Disconnect | 3-1/8" | PAC/API Reg | |
| Note | Note: Available with Different Drop & Drift Ball Sizes | | | | |

| HD3 HYDRAULIC DISCONNECTS-Standard | | | | | |
|------------------------------------|-------------|-----------------------------------|-----------|------------|--|
| 0.D. | Part Number | PARTS DESCRIPTION | Tool Size | Threads | |
| 1.688 | 168HD3-XX | 1-11/16" HD3 Hydraulic Disconnect | 1-11/16" | 1.00" MT | |
| 2.125 | 212HD3-XX | 2-1/8" HD3 Hydraulic Disconnect | 2-1/8" | 1.50" MT | |
| 2.875 | 287HD3-XX | 2-7/8" HD3 Hydraulic Disconnect | 2-7/8" | 2-3/8" PAC | |

| GS PULLING TOOLS | | | | |
|------------------|-------------|-----------------------|-----------------|-------------------|
| GS Profile | Part Number | PARTS DESCRIPTION | Tool Size | Threads |
| 2.000 | 200GSPT-XX | 2.00" GS Pulling Tool | 1-11/16" | 1.00" MT/CS |
| 2.500 | 250GSPT-XX | 2.50" GS Pulling Tool | 2-1/8" | 1.25" CS/1.50" MT |
| 3.000 | 300GSPT-XX | 3.00" GS Pulling Tool | 2-7/8" & 3-1/8" | PAC/API Reg |

| DUAL CIRCULATION SUB (Ball Drop), Burst Disc Capable | | | | | |
|--|-------------|-------------------------------|-----------|-------------------|--|
| 0.D. | Part Number | PARTS DESCRIPTION | Tool Size | Threads | |
| 1.500 | 150DCS2-XX | 1-1/2" Dual Circulation Sub | 1-1/2" | 3/4" MT | |
| 1.688 | 168DCS2-XX | 1-11/16" Dual Circulation Sub | 1-11/16" | 1.00" MT/CS | |
| 2.125 | 212DCS2-XX | 2-1/8" Dual Circulation Sub | 2-1/8" | 1.25" CS/1.50" MT | |
| 2.875 | 287DCS2-XX | 2-7/8" Dual Circulation Sub | 2-7/8" | PAC/API Reg | |
| 3.125 | 312DCS2-XX | 3-1/8" Dual Circulation Sub | 3-1/8" | PAC/API Reg | |
| 3.375 | 338DCS2-XX | 3-3/8" Dual Circulation Sub | 3-3/8" | PAC/API Reg | |

| TORQUE-THRU KNUCKLE JOINT | | | | | |
|---------------------------|-------------|------------------------------------|-----------|-------------------|--|
| 0.D. | Part Number | PARTS DESCRIPTION | Tool Size | Threads | |
| 1.688 | 168TTKJ-XX | 1-11/16" Torque Thru Knuckle Joint | 1-11/16" | 1.00" MT/CS | |
| 2.125 | 212TTKJ-XX | 2-1/8" Torque Thru Knuckle Joint | 2-1/8" | 1.25" CS/1.50" MT | |
| 2.875 | 287TTKJ-XX | 2-7/8" Torque Thru Knuckle Joint | 2-7/8" | PAC/API Reg | |
| 3.125 | 312TTKJ-XX | 3-1/8" Torque Thru Knuckle Joint | 3-1/8" | PAC/API Reg | |

| LOCKING SWIVEL JOINT | | | | | |
|----------------------|-------------|-------------------------------|-----------|-------------------|--|
| O.D. | Part Number | PARTS DESCRIPTION | Tool Size | Threads | |
| 1.688 | 168LSJ-XX | 1-11/16" Locking Swivel Joint | 1-11/16" | 1.00" MT/CS | |
| 2.125 | 212LSJ-XX | 2-1/8" Locking Swivel Joint | 2-1/8" | 1.25" CS/1.50" MT | |
| 2.875 | 287LSJ-XX | 2-7/8" Locking Swivel Joint | 2-7/8" | 2-3/8"PAC | |
| 3.125 | 312LSJ-XX | 3-1/8" Locking Swivel Joint | 3-1/8" | 2-3/8" API Reg | |

| HYDRAULIC ACTIVATED BOW SPRING CENTRALIZER | | | | |
|--|-------------|-------------------------------|-----------|----------------|
| 0.D. | Part Number | PARTS DESCRIPTION | Tool Size | Threads |
| 1.688 | 168BSC-XX | 1-11/16" Hyd. Bow Centralizer | 6.50" | 1.00" MT |
| 2.125 | 212BSC-XX | 2-1/8" Hyd. Bow Centralizer | 7.00" | 1.50" MT |
| 2.875 | 287BSC-XX | 2-7/8" Hyd. Bow Centralizer | 8.00" | 2-3/8" PAC |
| 3.125 | 312BSC-XX | 3-1/8" Hyd. Bow Centralizer | 8.00" | 2-3/8" API Reg |



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Thru-Tubing Tool Catalog - 2022

| MULTI JET BI-DIRECTIONAL SPINNING WASH TOOL (UP & DOWN FLOW) | | | | |
|--|---------------------|--|-----------------|--------------------------|
| 0.D. | Part Number | PARTS DESCRIPTION | Nozzles | Threads |
| 1.250 | 125SWT-XX | 1-1/4" Spinning Wash Tool | 13 | 1.00" MT/CS |
| 1.688 | 168SWT-XX | 1-11/16" Spinning Wash Tool | 13 | 1.00" MT/CS |
| 2.125 | 212SWT-XX | 2-1/8" Spinning Wash Tool | 13 | 1.25" CS/1.50" MT |
| 2.875 | 287SWT-XX | 2-7/8" Spinning Wash Too | 17 | PAC/API Reg |
| 3.125 | 312SWT-XX | 3-1/8" Spinning Wash Tool | 21 | PAC/API Reg |
| Noto | Nozzla jots are ren | laceable and are configured for standard w | ll hara Custama | r or ongineered crecific |

Note: Nozzle jets are replaceable and are configured for standard well bore. Customer or engineered specific nozzles available

| FULL BORE SINGLE PORT WASH NOZZLE | | | | |
|-----------------------------------|-------------|--------------------------------|----------|-------------------|
| 0.D. | Part Number | PARTS DESCRIPTION | Port Dia | Threads |
| 1.250 | 125FBWN-XX | 1-1/4" Full Bore Wash Nozzle | 1/2" | 3/4" MT/CS |
| 1.500 | 150FBWN-XX | 1-1/2" Full Bore Wash Nozzle | 1/2" | 3/4" MT/CS |
| 1.688 | 168FBWN-XX | 1-11/16" Full Bore Wash Nozzle | 3/4" | 1.00" MT/CS |
| 2.125 | 212FBWH-XX | 2-1/8" Full Bore Wash Nozzle | 3/4" | 1.25" CS/1.50" MT |
| 2.875 | 287FBWN-XX | 2-7/8" Full Bore Wash Nozzle | 1.00" | PAC/API Reg |
| 3.125 | 312FBWN-XX | 3-1/8" Full Bore Wash Nozzle | 1.00" | PAC/API Reg |

| 5-PORT WASH NOZZLE | | | | |
|--------------------|-------------|-----------------------------|---------------|------------------|
| 0.D. | Part Number | PARTS DESCRIPTION | Port Dia | Threads |
| 1.250 | 125PWN-XX | 1-1/4" 5-Port Wash Nozzle | 11/64" | 3/4" MT |
| 1.500 | 150PWN-XX | 1-1/2" 5-Port Wash Nozzle | 3/16" | 1.00" MT |
| 1.688 | 168PWN-XX | 1-11/16" 5-Port Wash Nozzle | 3/16" | 1.00" MT |
| 2.125 | 212PWN-XX | 2-1/8" 5-Port Wash Nozzle | 3/16" | 1.50" MT |
| 2.875 | 287PWN-XX | 2-7/8" 5-Port Wash Nozzle | 1/4" or 5/16" | 2-3/8" PAC |
| 3.125 | 312PWN-XX | 3-1/8" 5-Port Wash Nozzle | 1/4" or 5/16" | " 2-3/8" API Reg |

| STRAIGHT WEIGHT BARS - 3 FT. MAKE-UP LENGTH | | | | |
|---|--------------|---------------------|-------|----------------|
| O.D. | Part Number | PARTS DESCRIPTION | I.D. | Threads |
| 1.250 | 125WTB-30-XX | 1-1/4" Weight Bar | 1/2" | 3/4" MT |
| 1.688 | 168WTB-30-XX | 1-11/16" Weight Bar | 3/4" | 1.00" MT |
| 2.125 | 212WTB-30-XX | 2-1/8" Weight Bar | 1.00" | 1.50" MT |
| 2.875 | 287WTB-30-XX | 2-7/8" Weight Bar | 1.00" | 2-3/8" PAC |
| 3.125 | 312WTB-30-XX | 3-1/8" Weight Bar | 1.00" | 2-3/8" API Reg |

| STRAIGHT WEIGHT BARS - 4 FT. MAKE-UP LENGTH | | | | | | | | | |
|---|--------------|---------------------|-------|-------------------|--|--|--|--|--|
| 0.D. | Part Number | PARTS DESCRIPTION | I.D. | Threads | | | | | |
| 1.250 | 125WTB-40-XX | 1-1/4" Weight Bar | 1/2" | 3/4" MMT/CS | | | | | |
| 1.688 | 168WTB-40-XX | 1-11/16" Weight Bar | 3/4" | 1.00" MT/CS | | | | | |
| 2.125 | 212WTB-40-XX | 2-1/8" Weight Bar | 1.00" | 1.25" CS/1.50" MT | | | | | |
| 2.875 | 287WTB-40-XX | 2-7/8" Weight Bar | 1.00" | PAC/API Reg | | | | | |
| 3.125 | 312WTB-40-XX | 3-1/8" Weight Bar | 1.00" | PAC/API Reg | | | | | |



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Thru-Tubing Tool Catalog - 2022

| STRAIGHT WEIGHT BARS - 5 FT. MAKE-UP LENGTH | | | | | | | | | | |
|---|--------------|---------------------|-------|-------------------|--|--|--|--|--|--|
| O.D. | Part Number | PARTS DESCRIPTION | I.D. | Threads | | | | | | |
| 1.250 | 125WTB-50-XX | 1-1/4" Weight Bar | 1/2" | 3/4" MMT/CS | | | | | | |
| 1.688 | 168WTB-50-XX | 1-11/16" Weight Bar | 3/4" | 1.00" MT/CS | | | | | | |
| 2.125 | 212WTB-50-XX | 2-1/8" Weight Bar | 1.00" | 1.25" CS/1.50" MT | | | | | | |
| 2.875 | 287WTB-50-XX | 2-7/8" Weight Bar | 1.00" | PAC/API Reg | | | | | | |
| 3.125 | 312WTB-50-XX | 3-1/8" Weight Bar | 1.00" | PAC/API Reg | | | | | | |

| SLAMMER" IMPACT HAMMERS-DOWN | | | | | | | | | |
|------------------------------|-------------|---------------------------------|------|-------------------|--|--|--|--|--|
| 0.D. | Part Number | PARTS DESCRIPTION | I.D. | Threads | | | | | |
| 1.375 | 138SDS-XX | 1-3/8" Slammer Impact Hammers | N/A | 3/4" MT/CS | | | | | |
| 1.688 | 168SDS-XX | 1-11/16" Slammer Impact Hammers | N/A | 1.00" MT/CS | | | | | |
| 2.125 | 212SDS-XX | 2-1/8" Slammer Impact Hammers | N/A | 1.25" CS/1.50" MT | | | | | |

| SRT DRILL MOTORS; MUD LUBRICATED | | | | | | | | |
|----------------------------------|-------------|--|-----------|----------|--|--|--|--|
| O.D. | Part Number | PARTS DESCRIPTION | Tool Size | Threads | | | | |
| 1.500 | 150SRT3-XX | 1-1/2" SRT-G3 Drill Motor; 5/6 Lobe, 3.0 Stage RP Conventional Power Section (1.0-BPM) | 1-1/2" | 3/4" MT | | | | |
| 1.688 | 168SRT2-XX | 1-11/16" SRT-G2 Drill Motor-Shorty; 5/6 Lobe, 1.0 Stage AB Conventional Power Section (1.25-BPM) | 1-11/16" | 1.00" MT | | | | |
| 1.688 | 168SRT2-XX | 1-11/16" SRT-G2 Drill Motor; 5/6 Lobe, 2.3 Stage Even Wall Power Section (1.0-BPM) | 1-11/16" | 1.00" MT | | | | |
| 1.688 | 168SRT2-XX | 1-11/16" SRT-G2 Drill Motor; 5/6 Lobe, 2.3 Stage AB Conventional Power Section (1.0-BPM) | 1-11/16" | 1.00" MT | | | | |
| 1.688 | 168SRT2-XX | 1-11/16" SRT-G2 Drill Motor; 5/6 Lobe, 3.5 Stage AB Conventional Power Section (1.25-BPM) | 1-11/16" | 1.00" MT | | | | |
| 1.688 | 168SRT2-XX | 1-11/16" SRT-G2 Drill Motor; 5/6 Lobe, 5.0 Stage AB Conventional Power Section (1.25-BPM) | 1-11/16" | 1.00" MT | | | | |
| 2.125 | 212SRT2-XX | 2-1/8" SRT-G2 Drill Motor-Shorty; 5/6 Lobe, 2.4 Stage AB Conventional Power Section (1.5-BPM) | 2-1/8" | 1.50" MT | | | | |
| 2.125 | 212SRT2-XX | 2-1/8" SRT-G2 Drill Motor; 5/6 Lobe, 6.0 Stage Even Wall Power Section (1.5-BPM) | 2-1/8" | 1.50" MT | | | | |
| 2.125 | 212SRT2-XX | 2-1/8" SRT-G2 Drill Motor; 5/6 Lobe, 6.0 Stage AB Conventional Power Section (1.5-BPM) | 2-1/8" | 1.50" MT | | | | |

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Thru-Tubing Tool Catalog - 2022

| 2.875 | 287SRT3-XX | 2-7/8" SRT-G3 Drill Motor; 5/6 Lobe, 3.5 Stage Even Wall Power Section (4-BPM) | 2-7/8" | 2-3/8" PAC | | | | | |
|--|---------------------|--|--------------------|---------------------------|--|--|--|--|--|
| 2.875 | 287SRT3-XX | 2-7/8" SRT-G3 Drill Motor; 5/6 Lobe, 3.5 Stage AB Conventional Power Section (3-BPM) | 2-7/8" | 2-3/8" PAC | | | | | |
| 2.875 | 287SRT3-XX | 2-7/8" SRT-G3 Drill Motor; 5/6 Lobe, 4.7 Stage AB Conventional Power Section (4-BPM) | 2-7/8" | 2-3/8" PAC | | | | | |
| 2.875 | 287SRT3-XX | 2-7/8" SRT-G3 Drill Motor; 4/5 Lobe, 4.0 Stage AB Conventional Power Section (5-BPM) | 2-7/8" | 2-3/8" PAC | | | | | |
| 2.875 | 287SRT3-XX | 2-7/8" SRT-G3 Drill Motor; 5/6 Lobe, 7.0 Stage AB Conventional Power Section (3-BPM, High Speed) | 2-7/8" | 2-3/8" PAC | | | | | |
| 3.125 | 312SRT3-XX | 3-1/8" SRT-G3 Drill Motor; 5/6 Lobe, 3.5 Stage AB Conventional Power Section (5-BPM) | 3-1/8" | 2-3/8" API Reg | | | | | |
| 3.125 | 312SRT3-XX | 3-1/8" SRT-G3 Drill Motor; 7/8 Lobe, 2.5 Stage AB Conventional Power Section (5-BPM) | 3-1/8" | 2-3/8" API Reg | | | | | |
| 3.125 | 312SRT3-XX | 3-1/8" SRT-G3 Drill Motor; 5/6 Lobe, 5.0 Stage AB Conventional Power Section (5-BPM) | 3-1/8" | 2-3/8" API Reg | | | | | |
| 3.375 | 338SRT3-XX | 3-3/8" SRT-G3 Drill Motor; 5/6 Lobe, 3.5 Stage AB Conventional Power Section (3.12" Rotor, 3.38" Stator, 5-BPM) | 3-3/8" | 2-3/8" API Reg | | | | | |
| 3.375 | 338SRT3-XX | 3-3/8" SRT-G3 Drill Motor; 5/6 Lobe, 3.2 Stage AB Conventional Power Section (5.5-BPM) | 3-3/8" | 2-3/8" API Reg | | | | | |
| 3.375 | 338SRT3-XX | 3-3/8" SRT-G3 Drill Motor; 7/8 Lobe, 3.0 Stage AB Conventional Power Section (3.0-BPM) | 3-3/8" | 2-3/8" API Reg | | | | | |
| 3.750 | 375SRT-XX | 3-3/4" SRT-G2 Drill Motor; 5/6 Lobe, 4.8 Stage AB Conventional Power Section (7-BPM) | 3-3/4" | PAC/API Reg | | | | | |
| 3.750375SRT-XX3-3/4" SRT-G2 Drill Motor; 4/5 Lobe, 3.5 Stage RP Conventional Power3-3/4"PAC/API RegSection (4-BPM)Section (4-BPM) | | | | | | | | | |
| The SRT Lower Bearing Assembly is the most robust & efficient lower bearing on the market today and | | | | | | | | | |
| Note: | can be adapted to | o any manufacturer power section. Downho | le conditions dict | ate configuration and fit | | | | | |
| | of rotor and stato | r | | | | | | | |
| 1. All Prices are in | US Dollars | the data and the second s | | | | | | | |
| 2. All tools & acces | ssories can be mach | nined to any customer thread specification | | | | | | | |

| 2. All tools & accessories can be machined to any customer thread specification | | | | | | | | | |
|--|---------------------------------------|---------------------|--|--|--|--|--|--|--|
| 3. | Company Contacts E-mail | <u>Phone</u> | | | | | | | |
| Corporate Office | Cathy Frantz (ctrtoffice@ctrt.us.com) | 337-837-1062 | | | | | | | |
| North America / International Market | Carl LeBlanc (carl@ctrt.us.com) | 337-278-7786 (Cell) | | | | | | | |
| North America Market | Jerry Werlla (jerry@ctrt.us.com) | 432-853-5762 (Cell) | | | | | | | |
| INTERNATIONAL MARKET Gilbert Donatti (gilbert@ctrt.us.com) 832-681-0091 (Cell) | | | | | | | | | |
| 4. Tool Catalog does not include all BHA supplied by CTRT, call for information on tools not listed. | | | | | | | | | |



Coil Connector Pull/Tension Plates

The **CTRT Coil Connector Pull/Tension Plate** is utilized to confirm the make-up integrity of any Coiled Tubing End Connector following installation to the Coiled Tubing. It is a standard test component to validate pull capability of the coil connector.

The test sub incorporates a large diameter integrated base plate which is sized to prevent the tool from being pulled through the Stuffing Box Union, allowing a straight pull to be performed on the coil tubing connector prior to make-up of the tool string. The test sub can be provided with a lower box thread to allow installation of a needle valve for pressure testing purposes.

DESIGN ADVANTAGES & BENEFITS

- Simple, robust design
- > Multiple connection options to suit customer requirements
- Flow thru-bore for fluid bypass
- > Optional threaded port for needle valve
- Coil tubing diameters from 1.00" to 2-7/8"

Technical Specifications

| Test Sub Minor O.D. | I.D. | Base Diameter | Test Pull Range | Connection(s) |
|---------------------|-------|---------------|-------------------|------------------------|
| 1.500" | .500" | 5.50" | 7,500 lbs | ¾" AMMT or CS |
| 1.688" | .625" | 5.50" | 10,000 lbs | 1.00" MT or CS |
| 2.250" | .875" | 6.00" | 12,000-18,000 lbs | 1.25 CS or 1.50 MT |
| 2.950" | 1.00" | 8.00" | 25,000 lbs | 2-3/8" PAC |
| 3.125" | 1.00" | 9.00" | 30,000-40,000 lbs | 2-3/8" Reg, 2-7/8" PAC |

Note: Test pull ranges are to be used only as a guide. End user to determine actual requirements based on coil unit, coil diameter, operator preference, specific tool string and well conditions.





External Slip Coil Connector Assembly

The **CTRT, Inc. Coiled Tubing External Slip Connector Assembly** has been designed for capabilities of handling higher tensile and torsional loads during increasingly demanding Thru-Tubing operations while providing efficient and reliable make-up to the coil tubing on location.

The connector consists of a top and bottom sub, slip and brass crush ring. The assembly primary components are manufactured of high strength alloy or stainless (available in Hostile Environment) and are designed to surpass the tensile and burst of the coil tubing and meet the tensile and torsional loads of Motor Head Assemblies, PDM Motors and "Slammer"[®] Impact Hammer operations. O-rings seals are incorporated to ensure pressure integrity of Coiled Tubing during down-hole operation. Each designed Coil Connector has undergone <u>actual</u> pull test to validate strengths.

Design Advantages

- Dual O'Rings Seals
- > 10,000 PSI Rating
- Non Rotational
- Maximum Flow Rates
- Replaceable Slips

| Coiled Tubing Diameter | 1.00″ | 1.25″ | | 1.50″ | | | | | |
|----------------------------------|-----------|------------|-----------|----------------------|-------------------|------------|--|--|--|
| Max O.D. | 1.688" | 1.688" | 1.850" | 1.935"-SL | 2.125" | 2.188" | | | |
| Min I.D. | .750" | .750" | 1.00" | .750"(1.00") | 1.00." | 1.00" | | | |
| Thread Connection (*) | 1.0" CS | 1.0" CS/MT | 1.25" CS | 1.0" CS/MT(1.25" CS) | 1.50" MT/1.25" CS | 1.25" CS | | | |
| Max Over-Pull @ 80% (Ibs) | 40,000 | 38,000 | 38,000 | 37,000 | 50,000 | 50,000 | | | |
| Make-up Length | 8.875" | 8.17" | 9.375" | 9.375" | 9.000" | 9.750 | | | |
| Max Torsional Yield (ft- lbs) | 1,710 | 1,400 | 2,630 | 1,400 | 2,100 | 3.275 | | | |
| O'Ring Size | -214 | -218 | -218 | -222 | -222 | -222 | | | |
| Coil Minimum Dia. for Seal | .990" | 1.240" | 1.240" | 1.490" | 1.490" | 1.490" | | | |
| Commodity Order No. | 100CTC169 | 125CTC169 | 125CTC185 | 150CTC193 | 150CTC212 | 150CTC 218 | | | |

| | Т | ec | hn | ica | I S | pe | cif | ic | ati | on | s |
|--|---|----|----|-----|-----|----|-----|----|-----|----|---|
|--|---|----|----|-----|-----|----|-----|----|-----|----|---|

| Coiled Tubing Diameter | 1.7 | 75″ | 2.00″ | 2-3/ | '8 '' | 2-5/8″ |
|------------------------------|-----------|-----------|-----------|-------------------|-------------------|-------------------------|
| Max O.D. | 2.188"-SL | 2.875" | 2.875" | 3.125"-SL | 3.250" | 3.375"-SL/3.500" |
| Min I.D. | 1.00" | 1.375" | 1.375" | 1.375"/1.000" | 1.375"/1.000" | 1.500" |
| Thread Connection (*) | 1.25" CS | 2.37" PAC | 2.37" PAC | 2.37" PAC/API Reg | 2.37" PAC/API Reg | 2.38" Reg/ 2.87" PAC |
| Max Over-Pull @ 80% (lbs) | 43,000 | 74,000 | 75,000 | 87,000 | 104,000 | 129,581 |
| Max Torsional Yield (ft-lbs) | 2,525 | 4,800 | 4,800 | 7,850 | 9,800 | 12,000 |
| Make-up Length | 9.375" | 10.000" | 9.875" | 11.375" | 11.375" | 14.125" |
| O'Ring Size | -224 | -224 | -226 | -332 | -332 | -334 |
| Coil Minimum Dia. for Seal | 1.740" | 1.740" | 1.990" | 2.365" | 2.365" | 2.615" |
| Commodity Order No. | 175CTC218 | 175CTC287 | 200CTC287 | 237CTC312 | 237CTC325 | 262CTC350 |



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External Dimple Connectors

The **CTRT External Dimple Connector** has been designed as an alternate tool that allows the attachment of the tool string to the coil tubing. Instead of slip type coil connectors that uses an engagement slip that bites into the coil upon being torqued, the external dimple connector, engages via radius set plugs that seat into the recessed dimples in the coil tubing wall.

The dimple radius and depth geometry is created in the coil by use of a **Dimple Installation Guide** fixture with compressive indention plugs that precisely places the progressive radius dimple locations to match the exact location of the external dimple connector being used. This dimple template is accomplished via a pneumatic driven impact device.

DESIGN ADVANTAGES & BENEFITS

- Dual O'Ring Seals
- 10,000 PSI Rating
- Non-Rotational
- Maximum Flow Rates
- High Torque





THRU-TUBING Coil Connectors

The External Dimple Connector consist of one main body component threaded with pin connection. Available in coil tubing sizes **1-1/4**" to **2-7/8**". Contact your CTRT representative who can assist you with your coil connector specifications.

External Dimple Technical Specifications

| Coiled Tubing Diameter | 1.50″ | 1.75″ | 2.00″ | 2-3/8″ | | 2-5/8″ |
|----------------------------|-----------|-----------|------------|------------|------------|------------|
| Max O.D. | 2.125" | 2.250" | 2.875" | 2.875" | 3.125" | 3.250" |
| Min I.D. | 1.000" | 1.000" | 1.375" | 1.375" | 1.000" | 1.000" |
| Thread Connection (*) | 1.50" MT | 1.50" MT | 2-3/8" PAC | 2-3/8" PAC | 2-3/8" Reg | 2-3/8" Reg |
| Make-up Length | 9.125" | 9.125" | 8.750" | 8.750" | 8.750" | 8.750" |
| Coil Minimum Dia. for Seal | 1.490" | 1.740" | 1.990" | 2.365" | 2.365" | 2.615" |
| Commodity Order No. | 150EDC212 | 175EDC225 | 200EDC287 | 238EDC287 | 238EDC312 | 262EDC325 |

Dimple Installation Tool Technical Specifications

| Coiled Tubing Diameter | 1.50″ | 1.75″ | 2.00″ | 2-3/8″ | 2-5/8″ |
|------------------------|----------------|----------------|----------------|----------------|----------------|
| Max O.D. | 3.350" | 3.540" | 3.850" | 4.200" | 4.473" |
| Min I.D. | 1.000" | 1.375" | 1.550" | 1.550" | 1.000" |
| Length | 7.50" | 7.50" | 7.50" | 7.50" | 7.50" |
| Redress Kits | 150EDC-DCT-RDK | 175EDC-DCT-RDK | 200EDC-DCT-RDK | 238EDC-DCT-RDK | 262EDC-DCT-RDK |
| Commodity Order No. | 150EDC-DCT-01 | 175EDC-DCT-01 | 200EDC-DCT-01 | 238EDC-DCT-01 | 262EDC-DCT-01 |



The CTRT Internal/External Slim Line Coil Tubing Dimple Connector has been designed to integrate the benefits of both an internal and external dimple style connector as an alternate connector makeup that allows the attachment of the tool string to the coil tubing. Instead of slip type coil connectors that use an engagement slip that bites into the coil upon being torqued, the IES dimple connector, engages via grub screws that perform dimples in the coil tubing wall and engages the coil thru support from both the I.D and O.D. of the coil tubing.

The dimple radius and depth geometry is created in the coil by use of a **Dimple Installation** Guide fixture with compressive indention plugs that precisely places the radius dimple locations to match the exact location of the IES dimple internal mandrel being used. Radius setting plugs are threaded and torgued from the external housing that locks to the O.D. of the coil at the exact dimple indention location.

DESIGN ADVANTAGES & BENEFITS

- Dual O'Ring Seals
- 10,000 PSI Rating
- Non-Rotational
- Maximum Flow Rates
- Coil Supported From Both the I.D. & O.D.

The Internal/External Slim Line Coil Dimple Connector consist of two main body components that encapsulate the coil with a threaded pin connection for BHA makeup. Currently available in coil tubing sizes 2.00" to 2-5/8". Contact your CTRT representative who can assist you with your coil connector specifications.

Dimple Connector Technical Specifications

| Coiled Tubing Diameter | 2.00″ SL | 2-3/8 | 3″ SL | 2-5/8″ SL |
|------------------------|-------------------|--|--|--|
| Max O.D. | 2.875" | 2.875" | 3.125" | 3.125" |
| Min I.D. | 1.000" | 1.000" | 1.000" | 1.000" |
| CT Wall | .134",.145",.156" | .134", .156",.175" | .134",.156",.175" | .134",.156",.175" |
| Thread Connection (*) | 2-3/8" PAC | 2-3/8" PAC | 2-3/8" Reg | 2-3/8" Reg |
| Make-up Length | 12.250" | 12.250" | 12.250" | 12.750" |
| O'Ring Size | TBD | .134"W (-225) .156"W (-224) .175"W (-224) | .134"W (-225) .156"W (-224) .175"W (-224) | .134"W (-227) .156"W (-227) .175"W (-226) |
| Coil Max I.D. for Seal | TBD | .134W (2.127") .156W (2.083") .175W (2.045") | .134W (2.127") .156W (2.083") .175W (2.045") | .134W (2.377") .156W (2.333") .175W (2.295") |
| Commodity Order No | 2001ES287-XXX | 238IES287-XXX | 238IES312-XXX | 262IES312-XXX |

Note: Coil wall thickness must be identified at time of order to correctly size. **Dimple Installation Guide Technical Specifications**

| Coiled Tubing Diameter | 2.00″ SL | 2-3/3 | 2-5/8″ SL | |
|------------------------|-------------------|--------------------|--------------------|--------------------|
| Max O.D. | 3.500" | 4.200" | 4.200" | 4.450" |
| Min I.D. | 2.875" | 2.875" | 3.125" | 3.125" |
| CT Wall | .134",.145",.156" | .134", .156",.175" | .134", .156",.175" | .134", .156",.175" |
| Length | 12.250" | 12.250" | 12.250" | 12.250" |
| Redress Kits | 200IES-DCT-RDK | 238IES-DCT-RDK | 238IES-DCT-RDK | 262IES-DCT-RDK |
| Commodity Order No. | 200IES-DCT-01 | 238IES-DCT-01 | 238IES-DCT-01 | 262IES-DCT-01 |

Note: The Dimple Installation Guide is used to accurately align and produce the indentations in the coil tubing wall by using dimple indention plugs.





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Internal Slip Connectors

The **CTRT Internal Slip Coil Connector** has been designed as an alternate slim line connection of coil tubing to the BHA. This internal slip type engages the internal diameter of the coil tubing to ensure that axial load is transferred into the coil tubing.

When used in conjunction with the **CTRT** patent pending **EZ Coil Tubing Seam Removal System**, the internal slip connector efficiently slides into the open end of the coil for a pressure retaining barrier.

DESIGN ADVANTAGES & BENEFITS

- Dual O'Ring Seals
- 10,000 PSI Rating
- Non Rotational
- Replaceable Slips

Technical Specifications

| Coil Tubing Diameter | 1.25″ | 1.50″ | 1.75″ | 2.00″ |
|-----------------------|------------|-------------------|-----------------|-----------------|
| Coil Wall Thickness | .095"134" | .095"156" | .109"224" | .116"224" |
| Make -Up Length | 12-7/8" | 12-7/8" | 12-7/8" | 12-7/8" |
| Max O.D. | 1-1/2" | 1.50"SL & 1.68" | 1.75"SL & 2.12" | 2.00"SL & 2.12" |
| Min I.D. | 0.531" | .562 | .657" | .875" |
| Thread Connection (*) | 3/4" AMMT | 3/4" & 1.00" AMMT | 1.50" AMMT | 1.50" AMMT |
| Commodity Order No. | 125ISC-XXX | 150ISC-XXX | 175ISC-XXX | 200ISC-XXX |

Typical thread connections. Customer specified thread connection available upon request. Coil wall thickness must be identified at time of order to correctly size.





Internal Dimple Connectors

The **CTRT Coil Tubing Internal Dimple Connector** is a slim line one-piece design that allows attachment of the coil tubing to the BHA. Instead of slip type coil connectors that use an engagement slip that bites into the coil upon being torqued, the Internal Dimple Connector, engages by the forming of the Coil Tubing wall into the recess profiles on the connector.

The dimple radius and depth geometry are created in the coil by use of a **Dimple Installation Guide** tool with compressive indention plugs that precisely places the radius dimple locations to match the exact location of the **CTRT** internal dimple connector. This installation guide is a single piece applicator that optimizes the ease of dimpling.

DESIGN ADVANTAGES & BENEFITS

- Dual O'Ring Seals
- > 10,000 PSI Rating
- Non-Rotational
- Maximum Flow Rates
- Easy Make-Up with Optimal One-Piece Applicator





THRU-TUBING Coil Connectors

Dimple Connector Technical Specifications

| Coiled Tubing Diameter | 1.50″ | 1.75″ | 2.00″ SL | 2-3/8″ SL |
|------------------------|---------------|---------------|---------------|---------------|
| Max O.D. | 1.68" | 2.12" | 2.00" | 2.375" |
| Min I.D. | .750" | .750" 1.000" | | 1.000" |
| CT Wall | Must Specify | Must Specify | Must Specify | Must Specify |
| Thread Connection (*) | 1.00" AMMT | 1.50" AMMT | 1.50" AMMT | 1.50" AMMT |
| Make-up Length | 3.25" | 3.38" | 3.38" | 5.25" |
| Commodity Order No. | 150IDC168-XXX | 175IDC212-XXX | 200IDC200-XXX | 238IDC238-XXX |

Note: Coil wall thickness must be identified at time of order to correctly size.

Dimple Installation Guide Technical Specifications

| Coiled Tubing Diameter | 1.50″ | 1.75″ | 2.00" SL | 2-3/8″ SL | |
|------------------------|----------------|----------------|----------------|----------------|--|
| Max O.D. | 3.500" | 4.600" 4.750" | | 5.000" | |
| Min I.D. | 1.69" | 2.13" | 2.00" | 2.38" | |
| Length | 6.50" | 6.50" | 6.50" | 7.00" | |
| Redress Kits | 150IDC-DCT-RDK | 175IDC-DCT-RDK | 200IDC-DCT-RDK | 238IDC-DCT-RDK | |
| Commodity Order No. | 150IDC-DCT-01 | 238IDC-DCT-01 | 238IDC-DCT-01 | 262IDC-DCT-01 | |

Note: The Dimple Installation Guide is used to accurately align and produce the indentations in the coil tubing wall by using dimple indention plugs.



Internal Roll-On Connectors

The **CTRT Internal Roll-On Coil Connector** allows the attachment coil tubing to the coil tubing BHA via a threaded connection. The coil tubing is crimped via roller wheels into the radius profiles by a crimping tool that forms the coil into the mating shape on the coil connector providing a high strength tensile linear pull.

When used in conjunction with the **CTRT** patent pending **EZ Coil Tubing Seam Removal System**, the rollon connector efficiently slides into the open end of the coil for a pressure retaining barrier.

The **CTRT Double Ended Roll-On Connector** allows the in-line attachment of two lengths of coil tubing and have the same O.D. as the coil tubing.

DESIGN ADVANTAGES & BENEFITS

- High Tensile Strength
- > 10,000 PSI Rating
- Maximum Flow Rates
- Slim line Applications



Technical Specifications

| Coiled Tubing Diameter | 1.25″ | 1.50″ | 1.75″ |
|------------------------|--------------------|--------------------|--------------------|
| Coil Wall Thickness | Customer Specified | Customer Specified | Customer Specified |
| Max O.D. | 1.25" | 1.50" | 1.75" |
| Min I.D. | 0.531" | 0.531" | 0.657" |
| Thread Connection (*) | 3/4" AMMT | 3/4" AMMT | 1.00" AMMT |
| Commodity Order No. | 125-ROC-XXX | 150-ROC-XXX | 175-ROC-XXX |

Typical thread connections. Customer specified thread connections available upon request Note: -XXX Denotes Coil Tubing Wall Thickness





Weld-On Coil Connectors

The **CTRT Weld-On Coil Connector** allows the attachment coil tubing to the coil tubing BHA via a weld bead where the coil seats on shoulder of the connector. Weld-On Coil Connectors are typically used with larger coil tubing. Proper designed weld-on connectors will exhibit 100% of the torque and yield rating of the coil tubing.

CTRT's Weld-On Coil Connector incorporates a tapered insertion neck that provides a bend support to prevent concentrating bending loads at a single point where the coil tubing meets the connection shoulder. This eliminates all bending to the coil tubing heat affected zone. The connector also incorporates a milled seam slot, so no seam removal is necessary prior to insertion.

DESIGN ADVANTAGES & BENEFITS

- Non Rotational
- > 10,000 PSI Rating
- Maximum Flow Rates
- High Torque

Technical Specifications

| Coiled Tubing Diameter | 2.00″ | 2-3/8″ | 2-5/8″ |
|------------------------|--------------------|--------------------|--------------------|
| Coil Wall Thickness | Customer Specified | Customer Specified | Customer Specified |
| Max O.D. | 2.87" | 2.87" | 3.12" |
| Min I.D. | 1.38" | 1.00" | 1.00" |
| Thread Connection (*) | 2-3/8" PAC | 2-3/8" API Reg | 2-3/8" API Reg |
| Commodity Order No. | 200-WOC-XXX | 238-WOC-XXX | 262-WOC-XXX |

Typical thread connections. Customer specified thread connections available upon request Note: -XXX Denotes Coil Tubing Wall Thickness



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EZ Coil Seam Removal System

The **CTRT** patent pending **Coil Tubing EZ Seam Removal System** is designed to quickly attach and remove the internal weld seam of coil tubing in preparation to accept an internal type coil connector. The makeup of the tool allows a specified internal coil diameter cutter centralized within the coil I.D. to make a single cut that removes the seam with a 125 RMS finish or better. This allows a sealing surface to accept the internal type coil connector.

The **EZ Coil Tubing Seam Removal System** utilizes a pneumatic driven impact device to drive the seam cutter and does not need any lubricating oil or secondary operation with a flapper type sanding wheel to prepare the coil for sealing.

DESIGN ADVANTAGES & BENEFITS

- > EZ on and off assembly
- No Lubricating Fluid Necessary
- Replaceable Seam Cutters
- Efficient Cutting Process

Technical Specifications

| Coiled Tubing Diameter | 1.25″ | 1.50″ | 1.75 |
|------------------------|--------------|--------------|--------------|
| Max O.D. | 1.68" | 2.12" | 2.00" |
| Coil Tubing Wall | Must Specify | Must Specify | Must Specify |
| Max Cutting Distance | 4.50" | 4.50" | 4.50" |
| Make-up Length | 13.00" | 13.00" | 13.00" |
| Commodity Order No. | 125CSR-01 | 150CSR-01 | 175CSR-01 |

Note: Coil wall thickness must be identified at time of order to correctly size cutter.





HD Motor Head Assembly

The **CTRT HD Motor Head Assembly (MHA)** has been developed to support industry demand for shorter, stronger integrated BHA components. The MHA combines the Dual Flapper Check Valve, Hydraulic Disconnect and Dual Circulation Sub, standard components for virtually all tool string designs. The external slip connector is a separate tool that is made up to the MHA to give multiple options on coil connector type and size.

DESIGN ADVANTAGES & BENEFITS

- > Versatile compact design that reduces overall length instead of running tools individually.
- > Ability to separate and run as individual tools as needed by adding top and/or bottom subs.
- > Easy assembly and disassembly with supplied redress tools

Dual Flapper Check Valve

The MHA includes the Dual Flapper Check Valve which prevents wellbore fluid from flowing up the coil tubing to the surface and incorporates two stainless steel cartridge assemblies. These flapper cartridges are manufactured utilizing corrosion and flow resistant materials. Dual sealing virtually eliminates the risk of seal failure. Each flapper cartridge incorporates a primary low pressure viton seal, backed up with a secondary metal to metal high pressure seal.

Hydraulic Disconnect

The Hydraulic Disconnect has been designed to withstand vibration, torque and impact for today's long milling, drilling and impact drill applications. It allows the tool string to detach at a predetermined release point via the deployment of a suitable drop/trip ball through the coil tubing. A key design is the one piece collet that is locked in place by a collet sleeve to hold the tool together. This high strength combination allows for heavy jarring operations. The release piston is pressure balanced to eliminate hydraulic pressure that could affect shear values. A clean disconnect is accomplished when a drop ball locates on the release piston creating enough back pressure to shear the setting screws and disconnect the tool. Circulation is immediately returned to the tool string. The release piston and drop ball is returned to the surface leaving only a standard "GS" internal fish neck for retrieval purposes.

Dual Circulation Sub

The MHA also incorporates the Dual Circulation Sub, which offers the traditional method used to divert circulation if the string below the sub becomes plugged, eliminating unnecessary wear on the mud motor.

For **"Slammer**"[®] Impact Hammer operations, the circulation sub is removed to prevent potential shearing of setting screws or rupture of burst disk.

| MHA O.D. | Min I.D. | Makeup Length | MHA OverPull Yield @ 80% | Dual Flapper I.D. | Fishneck Internal Profile | GS Profile Over-Pull Yield @ 80% | Hydraulic Disconnect Min. I.D. | Hydraulic Release Drop Ball | Dual Circ Drop Ball | Working Pressure | Connection |
|----------|-------------|------------------|-----------------------------------|-------------------------|---------------------------------|--|--------------------------------------|-----------------------------------|------------------------------|---------------------|-----------------------|
| 1.688" | .406" | 23.43" | 47,000 lbs | .687" | 2.00" GS | 39,400 | .468" | 1/2"or 5/8" | 7/16" | 10,000 PSI | 1.00" MT/CS |
| 2.125" | .406" | 33.00" | 60,000 Ibs | .891" | 2.00" GS | 170,000 | .468" | 1/2" or 5/8" | 7/16" | 10,000 PSI | 1.00" MT/CS |
| 2.125" | .406" | 33.00" | 60,100 Ibs | .891" | 2.50" GS | 56,800 | .531" | 5/8" | 1/2" | 10,000 PSI | 1.50 MT or 1.25 CS |
| 2.875" | .750" | 36.43" | 93,000 Ibs | 1.034" | 3.00" GS | 140,000 | .875" | 15/16" | 13/16" | 10,000 PSI | 2-3/8" PAC |

Technical Specifications



Dual Flapper Check Valve-G2

The **CTRT Dual Flapper Check Valve** is a standard coiled tubing BHA component. It provides a means of preventing the back flow of well fluids into the coiled tubing in the event of a failure or damage to the coiled tubing string or surface equipment.

This check valve incorporates a dual sealing system in each cartridge assembly which virtually eliminates the risk of failure. A machined viton seal provides the primary low pressure seal, while at higher pressure, incorporates a metal to metal seal. Maximum flow area through the flapper cartridges reduces unnecessary back pressure on the surface pumps. The flow path through the cartridges does not restrict the passage of drop balls if required during operations.

DESIGN ADVANTAGES & BENEFITS

- Dual seal in each flapper cartridge-low pressure & high pressure
- Tight tolerance machined viton seals
- > Cartridges made from corrosion & wear resistance stainless

Technical Specifications

| Tool O.D. | Tool I.D. | Makeup Length | Over-Pull Yield @ 80% | Torsional Yield @ 80% | Working Pressure | Thread Connection |
|-----------|-----------|------------------|--------------------------|--------------------------|------------------|------------------------|
| 1.500 | .531" | 11.75" | 50,975 lbs | 2,745 Ft/lbs | 10,000 PSI | 3/4" AMMT |
| 1.688" | .687" | 10.62" | 65,000 lbs | 3,800 Ft/lbs | 10,000 PSI | 1.00" CS or MT |
| 2.125" | .687" | 12.50" | 127,000 lbs | 6,500 Ft/lbs | 10,000 PSI | 1.25 CS or 1.50 MT |
| 2.875" | 1.015" | 15.62" | 195,000 lbs | 14,500 Ft/lbs | 10,000 PSI | 2-3/8" PAC |
| 3.125" | 1.078" | 16.25" | 267,000 lbs | 17,400 Ft/lbs | 10,000 PSI | 2-3/8" PAC, API Reg |
| 3.375" | 1.078" | 16.50" | TBD | TBD | 10,000 PSI | 2-3/8" API Reg |





Quad Flapper Check Valve-G2

The CTRT **Quad Flapper Check Valve** is an alternate coiled tubing BHA component that replaces the need for two dual flapper check vales within the coil tubing string of tools with a single shorter unit with four cartridges with one tool. It provides a means of preventing the back flow of well fluids into the coiled tubing in the event of a failure or damage to the coiled tubing string or surface equipment.

This check valve incorporates a dual sealing system in each cartridge assembly which virtually eliminates the risk of failure. A machined viton seal provides the primary low pressure seal, while at higher pressure, incorporates a metal to metal seal. Maximum flow area through the flapper cartridges reduces unnecessary back pressure on the surface pumps. The flow path through the cartridges does not restrict the passage of drop balls if required during operations.

DESIGN ADVANTAGES & BENIFITS

- Dual seal in each flapper cartridge-low pressure & high pressure
- > Tight tolerance machined viton seals
- Cartridges made from corrosion & wear resistance stainless
- Eliminate two connections

Technical Specifications

| Tool O.D. | I.D. | Makeup Length | Overpull Yield | Working Pressure | Connection |
|-----------|--------|---------------|----------------|------------------|---------------------|
| 1.688" | .687" | TBD | 65,000 lbs | 10,000 PSI | 1.00" CS or MT |
| 2.125" | .687" | TBD | 127,000 lbs | 10,000 PSI | 1.25 CS or 1.50 MT |
| 2.875″ | 1.015" | 24″ | 267,000 lbs | 10,000 PSI | 2-3/8" PAC |
| 3.125″ | 1.078" | 24" | 267,000 lbs | 10,000 PSI | 2-3/8" PAC, API Reg |





Ball Check Valve

The **CTRT Ball Check Valve** is designed to prevent back flow of fluids within the coil tubing by having a ball that will seat on a metal to metal seal surface that cuts off the back pressure from the fluid within the coil tubing.

The **CTRT Ball Check Valve** can be run as a single ball check valve or a double ball check valve and does not have a through bore so drop balls cannot be used with this type of check valve. If a drop ball is required for a service application, a flapper type valve must be used.

DESIGN ADVANTAGES & BENEFITS

- Metal to Metal Flow Back Seal
- Single or Double Assembly
- Maximum Flow Rates
- Easy Assemble & redress

| I | echnica | Specifications | |
|---|---------|----------------|--|
| | | | |

| Coiled Tubing Diameter | 1.00″ | 1.25″ | 1.50″ |
|------------------------|-------------|-------------|-------------|
| Max O.D. | 1.00" | 1.25″ | 1.50" |
| Min I.D. | .421″ | .515″ | .625″ |
| Thread Connection (*) | 3/4" AMMT | 3/4" AMMT | 1.00" AMMT |
| Commodity Order No. | 100-DBV-XXX | 125-DBV-XXX | 150-DBV-XXX |







Dual Circulation Sub - G2

The **CTRT Dual Circulation Sub** is a second generation's ball activated coiled tubing BHA component. It is typically run above the drilling motor to provide a circulation path to the annulus for increased flow rate during milling operations or if plugged along the drilling motor flow path. This second generation is a single sub that incorporates both the shear piston and rupture disc port and eliminates a top and bottom sub.

The tool is activated by means of a drop ball and applied surface pressure to shear the setting screws allowing the internal piston to shift, opening flow to the annulus through circulation ports. Once activated, increased fluid volume can bypass from the tubing to the annulus.

An alternate rupture disk with predetermined pressure ratings can be activated by applying flow rates that exceed the burst disk rating. This method is typically used when the drill motor is plugged off and circulation is lost. Upon disc rupture, circulation is regained. It is not recommended that the tool be dressed with a rupture disc if used with our **"Slammer"**® Impact Hammers as premature rupture may occur.

DESIGN ADVANTAGES & BENEFITS

- Dual activation option by drop ball or rupture disk
- > Simple, robust design that captures ball in piston
- > Large flow area to annulus when activated
- > Tool can be dressed for a rupture disc or without
- > Alternate piston I.D. available to meet tool string need



Technical Specifications

| Tool O.D. | Min I.D. | Drop Ball | Makeup Length | Overpull Yield @ 80% | Working Pressure | Connection |
|-----------|----------|-----------|------------------|-------------------------|------------------|---------------------|
| 1.500" | .281" | 5/16" | 6.000" | 56,000 lbs | 10,000 PSI | 3/4" AMMT |
| 1.688" | .406″ | 7/16" | 7.500" | 97,000 lbs | 10,000 PSI | 1.00" AMMT |
| 2.125" | .438″ | 1/2" | 9.000" | 153,000 lbs | 10,000 PSI | 1.50" AMMT |
| 2.875″ | .750″ | 13/16" | 10.875" | 290,000 lbs | 10,000 PSI | 2-3/8" PAC |
| 3.125" | .750″ | 13/16" | 12.000" | 335,000 lbs | 10,000 PSI | 2-3/8" PAC, API Reg |
| 3.375″ | .750″ | 13/16" | 12.000" | 335,000 lbs | 10,000 PSI | 2-3/8" API Reg |





HD4 "INTER-LOC"™ Hydraulic Disconnect

The **CTRT HD4 "INTER-LOC"**[™] Hydraulic Disconnect has been designed to withstand high vibration, extreme torque and axial impact for today's long milling, drilling and impact hammer applications. The Patent Pending "**INTER-LOC**"[™] and **Rotation Lock** Technology features minimal components and a method for clean disconnect while leaving only the GS profile left in the hole.

A clean disconnect is accomplished when a drop ball locates on a piston, creating enough back pressure to shear the setting screws and disconnect the tool. Circulation is immediately returned to the tool string, providing a surface indication of a positive disconnect. All internal components, drop ball and top sub are returned to the surface leaving a standard "GS" internal fish neck profile for retrieval purposes.

DESIGN ADVANTAGES & BENEFITS

- ➤ The HD4 "INTER-LOC"™ incorporates a patent pending design that utilizes an internal interlocking profile, release method and rotation lock make-up that allows for the shortest disconnect on the market today.
- ➤ The uniquely designed HD4 "INTER-LOC"[™] features a simple release system and robust antirotation method There are no external castles. There also is no internal thread makeup required to any specific torque to hold disconnect together. Optional drift ball sizes available to suit any remediation or tool string requirement through the use of different interchangeable piston I.D. Sizes.
- We have designed into the HD4 increases in internal and external cross-sectional wall thicknesses to enable the tool to provide strength, torque and pull improvements unmatched by competing down-hole tools. Full operation with extended reach tools and stick pipe.
- ➤ Through value added engineering, the HD4 "INTER-LOC"™ Disconnect is truly the next generation of Hydraulic Release Down-Hole Tools. It is simply the easiest to assemble, disassemble and maintenance free disconnect on the market today.

RELEASE OPERATIONS

The HD4 "INTER-LOC"[™] Disconnect is supplied with brass setscrews to give compressive pressure ranges to suit virtually any coiled tubing application. Shear screws are ideally situated inside housing that eliminates the possibility of shear screws vibrating free during coiled tubing drilling operations. **REDRESS PROCESS**

Two redress tools are utilized to assemble and disassemble the HD4 "INTER-LOC"[™]. These tools allow for complete assembly and disassembly. It is assembled completely by hand, bottom sub threaded on, then torque into the tool string. These tools allow for easy field redressing. There is no internal make- up thread torque specification that holds release mechanism together like some of today's release tools because there is no internal thread.

| O.D. | Min I.D. | Makeup Length | Tool Overpull Yield @ 80% | Fishneck Internal Profile | GS Profile Overpull Yield @ 80% | Release Ball Options | Drift Ball Options | Working Pressure | Connection |
|-------|-------------------|------------------|------------------------------|---------------------------------|---------------------------------------|-------------------------|-----------------------|---------------------|-------------|
| 1.50" | .344" | 16-1/2" | 49,500 | 1.50" GS | 50,000 | 7/16" | 5/16" | 10,000 PSI | 3/4" AMMT |
| 1.69" | .468" | 16-1/4" | 60,000 | 2.00" GS | 39,400 | 1/2" | 7/16" | 10,000 PSI | 1.00" MT/CS |
| 1.75" | .468" | 16-1/4" | 60,000 | 2.00" GS | 58,400 | 1/2" | 7/16" | 10,000 PSI | 1.00" MT/CS |
| 2.12" | .468" | 16-1/4" | 60,000 | 2.00" GS | 170,000 | 1/2" | 7/16" | 10,000 PSI | 1.50" AMMT |
| 2.87" | .687" or .906" | 22-5/8" | 129,580 | 3.00" GS | 170,000 | 3/4" or 15/16" | 5/8" or 7/8" | 10,000 PSI | 2-3/8" PAC |
| 3.12" | .687" or .906" | 22-5/8" | 129,580 | 3.00" GS | 170,000 | 3/4" or 15/16" | 5/8" or 7/8" | 10,000 PSI | 2-3/8" REG |

Technical Specifications

Note: The strength calculations are considered accurate within +/- 20% and are to be used only as a guide. They do not constitute any actual or implied warranty or guarantee



THRU-TUBING DOWNHOLE TOOLS





HD3 Hydraulic Disconnect

The **CTRT HD3 Hydraulic Disconnect** has been designed and proven to withstand the most rigorous demanding coiled tubing applications. The tool is held together by a heavy duty, one-piece collet enclosed within a collet sleeve that locks the main upper and lower release housings together to give maximum tensile strength.

A clean disconnect is accomplished when a drop ball locates on a piston, creating enough back pressure to shear the setting screws and disconnect the tool. Circulation is immediately returned to the tool string, providing a surface indication of a positive disconnect. Release piston, drop ball and top sub are returned to the surface leaving a standard "GS" internal fish neck profile for retrieval purposes.

DESIGN ADVANTAGES & BENEFITS

- > External torque locking spline between main bodies.
- Locking heavy duty collet
- > Interchangeable release pistons for varied drop ball sizes.
- > Pressure balanced release piston

RELEASE OPERATIONS

The HD3 Hydraulic Disconnect is supplied with brass or stainless setscrews to give compressive pressure ranges to suit virtually any coiled tubing application. A drop ball locates on the release piston creating sufficient back pressure to shear the pins and disconnect the tool.

REDRESS PROCESS

Redress tools are utilized to assemble and disassemble the complete tool. One tool allows the placement of the locking collet and another for unlocking. These tools allow for easy field redressing.

| O.D. | Min I.D. | Makeup Length | Tool Overpull Yield @ 80% | Fishneck Internal Profile | GS Profile Overpull Yield @ 80% | Release Ball Options | Drift Ball Options | Working Pressure | Connection |
|-------|----------|------------------|------------------------------|------------------------------|---------------------------------------|-------------------------|-----------------------|---------------------|------------|
| 1.69" | .468" | 15.00" | 60,000 | 2.00" GS | 39,400 | 1/2" | 7/16" | 10,000 PSI | 1.00" MT |
| 2.12" | .468" | 17-3/8" | 60,000 | 2.00" GS | 58,400 | 1/2" | 7/16" | 10,000 PSI | 1.50" MT |
| 2.12" | .531" | 17-3/8" | 60,000 | 2.50" GS | 91,000 | 5/8" | 1/2" | 10,000 PSI | 1.50" MT |
| 2.87" | .875" | 20-7/8" | 93,000 | 3.00" GS | 140,000 | 15/16" | 13/16" | 10,000 PSI | 2-3/8" PAC |





"SRT" DOWNHOLE MOTORS (Can be use with Jars) Thru-Tubing Performance Motors sizes 1.50"-3.75"

The **SRT** Downhole Thru-Tubing Motor incorporated our Patented Short Radius Technology that features a wide range of torque, speed, and flow rates to convert hydraulic fluid energy, created by flow and pressure, into mechanical energy. The **SRT** was designed for optimal performance in deviated wells with today's higher torque power sections and a mud lubricated lower bearing assembly. This positive displacement motor produces optimum power output with maximum efficiency for today's Thru-Tubing Drilling demands.

DESIGN ADVANTAGES & BENEFITS

- The SRT incorporates a unique patented design that utilizes thrust bearings in an on-bottom and off- bottom operation which allows for one of the shortest bearing assembly on the market today.
- NO spacers or shims are needed to make-up slack in the thrust bearings during assembly as typically associated with today's angular contact bearings. Instead a preload tension system is utilized that eliminates any special spacing requirements.
- The uniquely designed SRT is radial stabilized at the bit box and throughout the length of the bearing assembly to significantly reduce side loading in deviated wells.
- We have designed into the SRT increases in internal and external cross sectional wall thicknesses to enables the SRT to provide strength improvements unmatched by competing downhole motors.
- Through value added engineering, the SRT is truly the next generation of downhole motors. It is simply the easiest to assemble and most reliable motor on the market today.

TRANSMISSION

The bearing assembly incorporates three different designs for transmission systems depending on tool size, operator requirements, well design & preference. **Option 1** is the single-piece flexible shaft and is the simplest transmission for standard applications in a small- diameter motor. **Option 2** is the "**CV-Hybrid**"[™] transmission that incorporates the flex shaft and the flow diverter into a patented sealed (Bootless) universal ball joint & flex shaft to match strength & eccentric rotation into a unique transmission system. **Option 3** is short integral sealed (Bootless) universal ball joints opposite each other with a center mandrel.

The Internal Sealed Universal Transmission incorporates the patented "Bootless" drive system. This eliminates the external rubber boots found in many of today's universal systems that hold lubrication. This "Bootless" system extends the life of the transmission and ultimately reduce transmission failures commonly found when rubber boots fail.

BEARING ASSEMBLY

The **SRT** Downhole Motor's Jarrable bearing assembly is well suited for weight on bit, side loading, and over pulls. It utilizes thrust bearings split internally for weight on bit in drilling mode and for off-bottom operation. It does not use a two piece (Inner/Outer) bearing assembly associated with today's current drilling motors, but rather a single unison dual bearing assembly. This bearing assembly is designed for a mud lubrication bearing system typically utilized in Thru-Tubing operations. The thrust bearings serve to efficiently operate with static and dynamic loads in drilling operations. The radial bearings provide perpendicular side loading strength to maintain optimal rotational support. The motor also incorporates an internal catch system in case of drive shaft failure that keeps the lower end intact when pulling out of hole and a top sub catch system if stator connection was to fail to keep rotor & lower end together and allow for evacuation of motor assembly from hole.

POWER SECTION

The power section consists of a steel rotor, and an elastomeric lined stator tailored to the planned well intervention whether it is a high temperature application or an aggressive fluid application. The **SRT** bearing assembly can be adapted to any manufacturer's rotor and stator.



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SRT METAL-METAL DOWNHOLE MOTORS Thru-Tubing Performance Motor sizes 1-11/16" - 3-1/8"

The **SRT** Downhole Thru-Tubing **Metal-Metal Motor** incorporates our Patented Short Radius Technology that features an **Metal-Metal Rotor & Stator** with a wide range of torque, speed, and flow rates to convert hydraulic fluid energy, created by flow and pressure, into mechanical energy and improves operational performance from previous configurations. The **Metal-Metal SRT** was designed to handle extreme hot holes, corrosion resistance to acids, nitrogen, solvents and high chloride fluids. The **Metal-Metal SRT** eliminates any elastomer rubber throughout the motor preventing swelling, rubber chunking and debonding. This positive displacement motor produces optimum power output with maximum efficiency for today's extreme Thru-Tubing Drilling demands.

DESIGN ADVANTAGES & BENEFITS

- The SRT Metal-Metal Motor incorporates a metal-metal power section that allows temperatures to 500°F, eliminates nitrogen swelling of elastomer as there is no rubber in the motor and can be run with adverse fluids. This unique patented design that utilizes thrust bearings in an on-bottom and off-bottom operation and improves the load bearing capability.
- NO spacers or shims are needed to make-up slack in the thrust bearings during assembly as typically associated with today's angular contact bearings. Instead a compression tension system is utilized that eliminates any special spacing requirements. This greatly improves ease of assembly and maintenance turn around time.
- ➤ The new generation SRT^M-MM improves radial stabilization at the bit box and throughout the length of the bearing assembly to significantly reduce side loading in deviated wells.
- We have designed into the SRT[™]-MM increases in internal and external cross-sectional wall thicknesses to enables the SRT[™]-MM to provide strength improvements unmatched by competing downhole motors.
- ➤ Through value added engineering, the SRT^M-MM is truly the next generation of downhole motors. This latest generation allows a greater number of plugs to be drilled in longer laterals wells while reducing cost per job. It is simply the easiest to assemble and most reliable motor on the market today.

TRANSMISSION

The bearing assembly incorporates a single-piece flex shaft and flow diverter into one component that exceed the torque capability of the power section and is the simplest transmission for standard applications in a small-diameter motor.

BEARING ASSEMBLY

The **SRT™-MM** Downhole Motor's jarrable bearing assembly improves weight on bit, side loading, and over pulls capabilities. It utilizes thrust bearings split internally for weight on bit in drilling mode and for off-bottom operation. It does not use a two piece (Inner/Outer) bearing assembly associated with today's current drilling motors, but rather a single unison dual bearing assembly. This bearing assembly is designed for a mud lubrication bearing system typically utilized in Thru-Tubing operations. The thrust bearings serve to efficiently operate with static and dynamic loads in drilling operations and improvements were implemented in this latest generation. The radial bearings provide perpendicular side loading strength to maintain optimal rotational support. The **SRT-MM** also improves the internal catch system in case of drive shaft failure that keeps the lower end intact when pulling out of hole and a top sub catch system if stator connection was to fail to keep rotor & lower end together and allow for evacuation of motor assembly from hole.





Revision: A 7/15/2020

| SRT-G3 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | | |
|--|--------------|-----------|-------------------------------|-----------------------------|--------|--------|--|--|--|
| Physical Data | Inches | MM | MM Axial Bearing Load Ratings | | | | | | |
| Motor Overall Length | 96.00 | 2,438 | | | lbs | Kg | | | |
| Motor Weight | 51.0 | 23.1 | | Dynamic Compression/Tension | 1,600 | 726 | | | |
| Bearing Assy MU Length | 26.5 | 673 | | Static Compression/Tension | 6,000 | 2,722 | | | |
| Top Connection | .75" AMMT | .75" AMMT | | Max Overpull to Re-Run | 6,000 | 2,722 | | | |
| Bit Connection | .75" AMMT | .75" AMMT | | Max Bit Overpull (80%) | 36,330 | 16,479 | | | |
| Bit Size | 1-7/8"-2.75" | 47.5-69.6 | | Max Body Overpull (80%) | 41,440 | 18,797 | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | | |
|------------------------------|--------|-------|--|-----------------------|--------|--------|--|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | | |
| Overall Length | 64.0 | 1,626 | | Overall Length | 64 | 1,626 | | | |
| Contour Length | 51.0 | 1,295 | | Tube O.D. | 1.50 | 38 | | | |
| Major Diameter | 0.98 | 24.89 | | Tube I.D. | 1.25 | 32 | | | |
| Minor Diameter | N/A | N/A | | Rubber Cutback-Top | 3.5 | 89 | | | |
| Eccentricity | 0.07 | 1.78 | | Rubber Cutback-Bottom | 6.8 | 173 | | | |
| Head O.D. | 1.00 | 25 | | Stages | 3.0 | 76 | | | |
| Weight-lbs (kg) | 11 | 5 | | Weight-lbs (kg) | 14 | 6 | | | |
| Thread Form | T1 o | r T2 | | Thread Form | Contac | t CTRT | | | |

| PERFORMANCE SUMMARY | | | | | | | | | |
|-------------------------------|---------|---------|--|--------------------------------|-------|-------|--|--|--|
| Flow Range gpm (lpm) | 25-45 | 95-170 | | Max Diff Pressure-psi (kPa) | 700 | 4,826 | | | |
| Bit Speed Range (rpm) | 400-720 | 400-720 | | Stall Diff Pressusre-psi (kPa) | 1,020 | 7,033 | | | |
| Torque Slope ft-lbs/psi | 0.19 | 0.04 | | Max Torque ft-lbs (nm) | 130 | 177 | | | |
| Rotation Rev/Gal (Rev/liter) | 16.00 | 4.23 | | Stall Torque ft-lbs (nm) | 190 | 258 | | | |
| Off Bottom Pressure-psi (kPa) | 50 | 345 | | Max HP (kW) | 18 | 14 | | | |



26



1.50" 11/12 Lobe, 6.2 Stage

Revision: A 18/07/2023

| SRT M/M THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | |
|---|------------------|-----------|--|--|--|--|--|--|
| Physical Data | Metric | Imperial | | | | | | |
| Flow range | 57-151 LPM | 15-40 GPM | | | | | | |
| Max operating temperature | 500 °C 932 °F | | | | | | | |
| Revolutions per unit volume | 3,99RPL 15,1 RPG | | | | | | | |
| No load speed | 226-604 | I RPM | | | | | | |
| Maximum differential pressure | 69 Bar | 1000 PSI | | | | | | |
| Maximum torque | 305 Nm | 225 ft-lb | | | | | | |
| Motor Power | 16 Kw | 22 HP | | | | | | |

Note: Performance data is for reference only and is subject to change.

| ROTOR SPECIFICATIONS | | | | | | | | |
|----------------------|-----------------------|----------|--|--|--|--|--|--|
| Physical Data | Metric | Imperial | | | | | | |
| Total length | 1494 mm | 58,8 in | | | | | | |
| Profile length | 1344 mm | 52,9 in | | | | | | |
| Head length | 150 mm | 5,9 in | | | | | | |
| Rotor eccentricity | 1,2 mm | 0,05 in | | | | | | |
| Major diameter | 28,6 mm | 1,13 in | | | | | | |
| Minor diameter | 23,8 mm | 0,94 in | | | | | | |
| Head diameter | 27,0 mm | 1,06 in | | | | | | |
| Material | 34CrAINi7-10 (1.8550) | | | | | | | |
| Weight | T.B.D | T.B.D | | | | | | |

| STATOR SPECIFICATIONS | | | | | | | | |
|-----------------------|-----------------------|------------------|--|--|--|--|--|--|
| Physical Data | Imperial | | | | | | | |
| Total length | 1750 mm | 68 <i>,</i> 9 in | | | | | | |
| Profile length | 1344 mm | 52 <i>,</i> 9 in | | | | | | |
| Stator outer diameter | 38,1 mm | 1,50 in | | | | | | |
| Major diameter | 31,0 mm | 1,22 in | | | | | | |
| Minor diameter | 26,2 mm | 1,03 in | | | | | | |
| Material | 34CrAINi7-10 (1.8550) | | | | | | | |
| Weight | T.B.D T.B.D | | | | | | | |

**Custom lengths and materials are available upon request.



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168SRT2-AB561.0

1.68" 5/6 Lobe, 1.0 Stage

Revision: A 2/26/2020

| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION Physical Data Inches MM Axial Bearing Load Ratings | | | | | | | | | |
|---|---------------|-------------|--|--|--|--|--|--|--|
| Motor Overall Length | 57.00 | 1,448 | lbs Kg | | | | | | |
| Motor Weight | 25 | 11 | Dynamic Compression/Tension 1,600 726 | | | | | | |
| Bearing Assy MU Length | 20.75 | 527 | Static Compression/Tension 6,000 2,722 | | | | | | |
| Top Connection | 1.00" MT | 1.00" MT | Max Overpull to Re-Run 6,000 2,722 | | | | | | |
| Bit Connection | 1.00" MT | 1.00" MT | Max Bit Overpull (80%) 55,000 24,948 | | | | | | |
| Bit Size | 1-7/8"-2-3/4" | 47.62-69.85 | Max Body Overpull (80%) 60,972 27,657 | | | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | | |
|------------------------------|--------|--------|--|-----------------------|--------|--------|--|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | | |
| Overall Length | 23.25 | 590.55 | | Overall Length | 30.00 | 762.00 | | | |
| Contour Length | 20.00 | 508.00 | | Tube O.D. | 1.69 | 42.88 | | | |
| Major Diameter | 1.22 | 30.99 | | Tube I.D. | 1.25 | 31.75 | | | |
| Minor Diameter | 0.873 | 22 | | Rubber Cutback-Top | 2.75 | 69.85 | | | |
| Eccentricity | 0.07 | 1.78 | | Rubber Cutback-Bottom | 6.25 | 158.75 | | | |
| Head O.D. | 1.125 | 28.58 | | Stages | 1.0 | 58 | | | |
| Weight-Ibs (kg) | 4.00 | 1.81 | | Weight-lbs (kg) | 7.00 | 3.18 | | | |
| Thread Form | T1 o | r T2 | | Thread Form | Contac | t CTRT | | | |

| PERFORMANCE SUMMARY | | | | | | | | | |
|----------------------------------|--------|---------|--------------------------------|-----|-------|--|--|--|--|
| Flow Range gpm (lpm) | 30-50 | 114-189 | Max Diff Pressure-psi (kPa) | 750 | 5.171 | | | | |
| Bit Speed Range (rpm) | 85-450 | 85-450 | Stall Diff Pressusre-psi (kPa) | 900 | 6.205 | | | | |
| Torque Slope ft-lbs/psi (nm/kPa) | 0.09 | 0.02 | Max Torque ft-lbs (nm) | 65 | 88 | | | | |
| Rotation Rev/Gal (Rev/liter) | 9.00 | 2.38 | Stall Torque ft-lbs (nm) | 80 | 108 | | | | |
| Off Bottom Pressure-psi (kPa) | 200 | 1,379 | Max HP (kW) | 22 | 16 | | | | |

PERFORMANCE CURVE

elinninelie

2024



Eccentricity

Thread Form

Weight-lbs (kg)

Head O.D.

PN: 168SRT-MM9106.2

1.68" 9/10 Lobe, 6.2 Stage

7.75

9.1

25.5

Revision: A 5/31/2022

MM

1,994

43

25

83

197

9

12

Contact CTRT

| SRT M/M THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | | |
|---|-----------------|----------------|------|------------------------------|------------|--------|--|--|--|
| Physical Data | Inches | MM | | Axial Bearing Lo | ad Ratings | | | | |
| Motor Overall Length | 105.75 | 2,686 | | | lbs | Kg | | | |
| Motor Weight | 55 | 25 | | Dynamic Compression/Tension | 1,600 | 726 | | | |
| Bearing Assy MU Length | 20.75 | 527 | | Static Compression/Tension | 6,000 | 2,722 | | | |
| Top Connection | 1.00" AMMT | 1.00" AMMT | | Max Overpull to Re-Run | 6,000 | 2,722 | | | |
| Bit Connection | 1.00" AMMT | 1.00" AMMT | | Max Bit Overpull (80%) | 55,000 | 24,948 | | | |
| Bit Size | 1-7/8-2-3/4 | 42.67-69.85 | | Max Body Overpull (80%) | 60,972 | 27,657 | | | |
| Note: Load ratings can vary wit | h different bit | styles based o | on a | aggressive to non-aggressive | | | | | |

POWER SECTION SPECIFICATIONS Rotor Inches MM Stator Inches Overall Length 71.6 1,819 Overall Length 79 Tube O.D. Contour Length 68 1,727 1.6875 Major Diameter 1.145 29.08 Tube I.D. 0.984 Minor Diameter 0.916 23 Rubber Cutback-Top 3.25

2.92

32

7

0.115

1.25

16

T1 or T2

| PERFORMANCE SUMMARY | | | | | | | | | | | |
|----------------------------------|---------|---------|--|--------------------------------|-------|--------|--|--|--|--|--|
| Flow Range gpm (lpm) | 20-50 | 76-189 | | Max Diff Pressure-psi (kPa) | 2,000 | 13,790 | | | | | |
| Bit Speed Range (rpm) | 205-512 | 205-512 | | Stall Diff Pressusre-psi (kPa) | 3,000 | 20,684 | | | | | |
| Torque Slope ft-lbs/psi (nm/kPa) | 0.10 | 0.02 | | Max Torque ft-lbs (nm) | 200 | 271 | | | | | |
| Rotation Rev/Gal (Rev/liter) | 10.24 | 2.71 | | Stall Torque ft-lbs (nm) | 300 | 407 | | | | | |
| Off Bottom Pressure-psi (kPa) | 100 | 689 | | Max HP (kW) | 58 | 44 | | | | | |

Rubber Cutback-Bottom

Stages

Weight-lbs (kg)

Thread Form



2024



1.68" 5/6 Lobe, 2.3 Stage

Revision: C 4/5/2016

| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | |
|--|---------------|-------------|--|--|--|--|--|--|
| Physical Data | Inches | MM | Axial Bearing Load Ratings | | | | | |
| Motor Overall Length | 83.00 | 2,108 | lbs Kg | | | | | |
| Motor Weight | 34 | 15 | Dynamic Compression/Tension 1,600 726 | | | | | |
| Bearing Assy MU Length | 20.75 | 527 | Static Compression/Tension 6,000 2,722 | | | | | |
| Top Connection | 1.00" MT | 1.00" MT | Max Overpull to Re-Run 6,000 2,722 | | | | | |
| Bit Connection | 1.00" MT | 1.00" MT | Max Bit Overpull (80%) 55,000 24,948 | | | | | |
| Bit Size | 1-7/8"-2-3/4" | 47.62-69.85 | Max Body Overpull (80%) 60,972 27,657 | | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | | |
|------------------------------|--------|-------|--|-----------------------|--------|--------|--|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | | |
| Overall Length | 50.625 | 1,286 | | Overall Length | 58 | 1,461 | | | |
| Contour Length | 48.375 | 1,229 | | Tube O.D. | 1.688 | 43 | | | |
| Major Diameter | 1.22 | 30.99 | | Tube I.D. | 1.25 | 32 | | | |
| Minor Diameter | 0.873 | 22 | | Rubber Cutback-Top | 3.5 | 89 | | | |
| Eccentricity | 0.076 | 1.93 | | Rubber Cutback-Bottom | 6.75 | 171 | | | |
| Head O.D. | 1.125 | 29 | | Stages | 2.3 | 58 | | | |
| Weight-lbs (kg) | 13 | 6 | | Weight-lbs (kg) | 14 | 6 | | | |
| Thread Form | T1 o | r T2 | | Thread Form | Contac | t CTRT | | | |

| PERFORMANCE SUMMARY | | | | | | | | | |
|----------------------------------|---------|---------|--------------------------------|-----|-------|--|--|--|--|
| Flow Range gpm (lpm) | 20-40 | 76-151 | Max Diff Pressure-psi (kPa) | 600 | 4,137 | | | | |
| Bit Speed Range (rpm) | 216-433 | 216-433 | Stall Diff Pressusre-psi (kPa) | 900 | 6,205 | | | | |
| Torque Slope ft-Ibs/psi (nm/kPa) | 0.22 | 0.04 | Max Torque ft-lbs (nm) | 132 | 179 | | | | |
| Rotation Rev/Gal (Rev/liter) | 10.83 | 2.86 | Stall Torque ft-lbs (nm) | 198 | 268 | | | | |
| Off Bottom Pressure-psi (kPa) | 300 | 2,068 | Max HP (kW) | 14 | 10 | | | | |





168SRT2-AB562.3

1.68" 5/6 Lobe, 2.3 Stage

Revision: E 12/17/2020

| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | |
|--|---------------|-------------|--|--|--|--|--|--|
| Physical Data | Inches | MM | Axial Bearing Load Ratings | | | | | |
| Motor Overall Length | 83.00 | 2,108 | lbs Kg | | | | | |
| Motor Weight | 34 | 15 | Dynamic Compression/Tension 1,600 726 | | | | | |
| Bearing Assy MU Length | 20.75 | 527 | Static Compression/Tension 6,000 2,722 | | | | | |
| Top Connection | 1.00" MT | 1.00" MT | Max Overpull to Re-Run 6,000 2,722 | | | | | |
| Bit Connection | 1.00" MT | 1.00" MT | Max Bit Overpull (80%) 55,000 24,948 | | | | | |
| Bit Size | 1-7/8"-2-3/4" | 47.62-69.85 | Max Body Overpull (80%) 60,972 27,657 | | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | | | |
|------------------------------|--------|-------|--|-----------------------|--------|--------|--|--|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | | | |
| Overall Length | 50.625 | 1,286 | | Overall Length | 58 | 1,461 | | | | |
| Contour Length | 48.375 | 1,229 | | Tube O.D. | 1.688 | 43 | | | | |
| Major Diameter | 1.063 | 27.00 | | Tube I.D. | 1.375 | 35 | | | | |
| Minor Diameter | N/A | N/A | | Rubber Cutback-Top | 3.5 | 89 | | | | |
| Eccentricity | 0.076 | 1.93 | | Rubber Cutback-Bottom | 6.75 | 171 | | | | |
| Head O.D. | 1.00 | 25 | | Stages | 2.3 | 58 | | | | |
| Weight-Ibs (kg) | 11.0 | 5.0 | | Weight-lbs (kg) | 14.0 | 6.4 | | | | |
| Thread Form | T1 o | r T2 | | Thread Form | Contac | t CTRT | | | | |

| PERFORMANCE SUMMARY | | | | | | | | | |
|----------------------------------|---------|---------|--|--------------------------------|-----|-------|--|--|--|
| Flow Range gpm (lpm) | 20-40 | 76-151 | | Max Diff Pressure-psi (kPa) | 550 | 3,792 | | | |
| Bit Speed Range (rpm) | 190-370 | 190-370 | | Stall Diff Pressusre-psi (kPa) | 860 | 5,929 | | | |
| Torque Slope ft-lbs/psi (nm/kPa) | 0.29 | 0.06 | | Max Torque ft-lbs (nm) | 160 | 217 | | | |
| Rotation Rev/Gal (Rev/liter) | 9.25 | 2.44 | | Stall Torque ft-lbs (nm) | 250 | 339 | | | |
| Off Bottom Pressure-psi (kPa) | 30 | 207 | | Max HP (kW) | 13 | 10 | | | |





168SRT2-AB563.5

1.68" 5/6 Lobe, 3.5 Stage

Revision: D 1/6/2021

| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | | |
|--|---------------|-------------|--|--|--|--|--|--|--|
| Physical Data | Inches | MM | Axial Bearing Load Ratings | | | | | | |
| Motor Overall Length | 122.00 | 3,099 | lbs Kg | | | | | | |
| Motor Weight | 36 | 16 | Dynamic Compression/Tension 1,600 726 | | | | | | |
| Bearing Assy MU Length | 20.75 | 527 | Static Compression/Tension 6,000 2,722 | | | | | | |
| Top Connection | 1.00" MT | 1.00" MT | Max Overpull to Re-Run 6,000 2,722 | | | | | | |
| Bit Connection | 1.00" MT | 1.00" MT | Max Bit Overpull (80%) 55,000 24,948 | | | | | | |
| Bit Size | 1-7/8"-2-3/4" | 47.62-69.85 | Max Body Overpull (80%) 60,972 27,657 | | | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | | |
|------------------------------|--------|-------|--|-----------------------|--------|--------|--|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | | |
| Overall Length | 65.375 | 1,661 | | Overall Length | 71 | 1,810 | | | |
| Contour Length | 62.375 | 1,584 | | Tube O.D. | 1.69 | 43 | | | |
| Major Diameter | 0.99 | 25.15 | | Tube I.D. | 1.38 | 35 | | | |
| Minor Diameter | N/A | N/A | | Rubber Cutback-Top | 3.50 | 89 | | | |
| Eccentricity | 0.069 | 1.75 | | Rubber Cutback-Bottom | 6.75 | 171 | | | |
| Head O.D. | 1.100 | 28 | | Stages | 3.5 | 89 | | | |
| Weight-lbs (kg) | 13 | 6 | | Weight-lbs (kg) | 14 | 6 | | | |
| Thread Form | T1 o | r T2 | | Thread Form | Contac | t CTRT | | | |

| PERFORMANCE SUMMARY | | | | | | | | | |
|----------------------------------|---------|---------|---|--|--|--|--|--|--|
| Flow Range gpm (lpm) | 25-55 | 95-208 | Max Diff Pressure-psi (kPa) 1,180 8,136 | | | | | | |
| Bit Speed Range (rpm) | 390-860 | 390-860 | Stall Diff Pressusre-psi (kPa) 1,860 12,824 | | | | | | |
| Torque Slope ft-Ibs/psi (nm/kPa) | 0.19 | 0.04 | Max Torque ft-lbs (nm) 228 310 | | | | | | |
| Rotation Rev/Gal (Rev/liter) | 15.64 | 4.13 | Stall Torque ft-lbs (nm) 360 488 | | | | | | |
| Off Bottom Pressure-psi (kPa) | 70 | 483 | Max HP (kW) 38 28 | | | | | | |



2024



1.68" 5/6 Lobe, 5.0 Stage

Revision: A 12/15/2020

| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | | | |
|--|---------------|-------------|--|--|--|--|--|--|--|--|
| Physical Data | Inches | MM | MM Axial Bearing Load Ratings | | | | | | | |
| Motor Overall Length | 122.00 | 3,099 | lbs Kg | | | | | | | |
| Motor Weight | 40 | 18 | Dynamic Compression/Tension 1,600 726 | | | | | | | |
| Bearing Assy MU Length | 20.75 | 527 | Static Compression/Tension 6,000 2,722 | | | | | | | |
| Top Connection | 1.00" MT | 1.00" MT | Max Overpull to Re-Run 6,000 2,722 | | | | | | | |
| Bit Connection | 1.00" MT | 1.00" MT | Max Bit Overpull (80%) 55,000 24,948 | | | | | | | |
| Bit Size | 1-7/8"-2-3/4" | 47.62-69.85 | Max Body Overpull (80%) 60,972 27,657 | | | | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | | | |
|------------------------------|--------|----------|--|-----------------------|--------|--------|--|--|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | | | |
| Overall Length | 92.12 | 2,340 | | Overall Length | 99 | 2,515 | | | | |
| Contour Length | 87 | 2,210 | | Tube O.D. | 1.688 | 43 | | | | |
| Major Diameter | 0.99 | 25.15 | | Tube I.D. | 1.375 | 35 | | | | |
| Minor Diameter | N/A | N/A | | Rubber Cutback-Top | 3.5 | 89 | | | | |
| Eccentricity | 0.07 | 1.78 | | Rubber Cutback-Bottom | 6.75 | 171 | | | | |
| Head O.D. | 1.125 | 29 | | Stages | 5 | 127 | | | | |
| Weight-Ibs (kg) | 13 | 6 | | Weight-Ibs (kg) | 25 | 11 | | | | |
| Thread Form | T1 o | T1 or T2 | | Thread Form | Contac | t CTRT | | | | |

| PERFORMANCE SUMMARY | | | | | | | | | | |
|----------------------------------|---------|---------|------------------------------|-------|--------|--|--|--|--|--|
| Flow Range gpm (lpm) | 25-55 | 76-189 | ax Diff Pressure-psi (kPa) | 1,180 | 8,136 | | | | | |
| Bit Speed Range (rpm) | 390-860 | 390-860 | all Diff Pressusre-psi (kPa) | 1,860 | 12,824 | | | | | |
| Torque Slope ft-Ibs/psi (nm/kPa) | 0.19 | 0.04 | ax Torque ft-lbs (nm) | 228 | 310 | | | | | |
| Rotation Rev/Gal (Rev/liter) | 15.64 | 4.13 | all Torque ft-lbs (nm) | 360 | 488 | | | | | |
| Off Bottom Pressure-psi (kPa) | 70 | 483 | ax HP (kW) | 38 | 28 | | | | | |





| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | | | |
|--|-----------|-----------|---|--|--|--|--|--|--|--|
| Physical Data | Inches | MM | Axial Bearing Load Ratings | | | | | | | |
| Motor Overall Length | 76.50 | 1,943 | lbs Kg | | | | | | | |
| Motor Weight | 49 | 22 | Dynamic Compression/Tension 7,000 3,175 | | | | | | | |
| Bearing Assy MU Length | 25.375 | 645 | Static Compression/Tension 11,000 4,990 | | | | | | | |
| Top Connection | 1.50" MT | 1.50" MT | Max Overpull to Re-Run 11,000 4,990 | | | | | | | |
| Bit Connection | 1.50" MT | 1.50" MT | Max Bit Overpull (80%) 83,000 37,649 | | | | | | | |
| Bit Size | 2.18-3.25 | 55.4-82.5 | Max Body Overpull (80%) 83,000 37,649 | | | | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | | | |
|------------------------------|--------|----------|--|-----------------------|--------|--------|--|--|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | | | |
| Overall Length | 34.75 | 883 | | Overall Length | 44.00 | 1,118 | | | | |
| Contour Length | 32 | 813 | | Tube O.D. | 2.125 | 54 | | | | |
| Major Diameter | 1.236 | 31.39 | | Tube I.D. | 1.75 | 44 | | | | |
| Minor Diameter | N/A | N/A | | Rubber Cutback-Top | 4.00 | 102 | | | | |
| Eccentricity | 0.087 | 2.21 | | Rubber Cutback-Bottom | 8.50 | 216 | | | | |
| Head O.D. | 1.25 | 32 | | Stages | 2.5 | 64 | | | | |
| Weight-Ibs (kg) | 9 | 4 | | Weight-Ibs (kg) | 15 | 7 | | | | |
| Thread Form | T1 o | T1 or T2 | | Thread Form | Contac | t CTRT | | | | |

| PERFORMANCE SUMMARY | | | | | | | | | | |
|----------------------------------|---------|---------|--|--|--|--|--|--|--|--|
| Flow Range gpm (lpm) | 30-60 | 114-227 | Max Diff Pressure-psi (kPa) 900 6,205 | | | | | | | |
| Bit Speed Range (rpm) | 200-700 | 200-700 | Stall Diff Pressusre-psi (kPa) 1,350 9,308 | | | | | | | |
| Torque Slope ft-lbs/psi (nm/kPa) | 0.24 | 0.02 | Max Torque ft-lbs (nm) 120 163 | | | | | | | |
| Rotation Rev/Gal (Rev/liter) | 12.78 | 3.08 | Stall Torque ft-lbs (nm) 150 203 | | | | | | | |
| Off Bottom Pressure-psi (kPa) | 250 | 1,724 | Max HP (kW) 32 23 | | | | | | | |



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PN:

212SRT-MM785.7

2.12" 7/8 Lobe, 5.7 Stage

Revision: A 5/31/202

| SRT M/M THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | | | |
|---|------------|------------|-------------------------------|-----------------------------|--------|--------|--|--|--|--|
| Physical Data | Inches | MM | MM Axial Bearing Load Ratings | | | | | | | |
| Motor Overall Length | 114.25 | 2,902 | | | lbs | Kg | | | | |
| Motor Weight | 90 | 41 | [| Dynamic Compression/Tension | 7,000 | 3,175 | | | | |
| Bearing Assy MU Length | 25.375 | 645 | ¢. | Static Compression/Tension | 11,000 | 4,990 | | | | |
| Top Connection | 1.50" AMMT | 1.50" AMMT | ſ | Max Overpull to Re-Run | 11,000 | 4,990 | | | | |
| Bit Connection | 1.50" AMMT | 1.50" AMMT | ſ | Max Bit Overpull (80%) | 83,000 | 37,649 | | | | |
| Bit Size | 2.18-3.25 | 55.5-82.5 | ſ | Max Body Overpull (80%) | 83,000 | 37,649 | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive.

| POWER SECTION SPECIFICATIONS | | | | | | | | | | | |
|------------------------------|--------|----------|--|-----------------------|--------|--------|--|--|--|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | | | | |
| Overall Length | 73 | 1,854 | | Overall Length | 82 | 2,070 | | | | | |
| Contour Length | 69 | 1,753 | | Tube O.D. | 2.12 | 54 | | | | | |
| Major Diameter | 1.51 | 38.35 | | Tube I.D. | 1.25 | 32 | | | | | |
| Minor Diameter | 1.13 | 29 | | Rubber Cutback-Top | 4.5 | 114 | | | | | |
| Eccentricity | 0.19 | 4.83 | | Rubber Cutback-Bottom | 8.75 | 222 | | | | | |
| Head O.D. | 1.57 | 40 | | Stages | 5.7 | 145 | | | | | |
| Weight-lbs (kg) | 26 | 12 | | Weight-Ibs (kg) | 38.5 | 17 | | | | | |
| Thread Form | T1 o | T1 or T2 | | Thread Form | Contac | t CTRT | | | | | |

| PERFORMANCE SUMMARY | | | | | | | | | | |
|----------------------------------|---------|---------|--|--------------------------------|-------|-------|--|--|--|--|
| Flow Range gpm (lpm) | 40-106 | 151-401 | | Max Diff Pressure-psi (kPa) | 725 | 4,999 | | | | |
| Bit Speed Range (rpm) | 216-575 | 216-575 | | Stall Diff Pressusre-psi (kPa) | 1,088 | 7,501 | | | | |
| Torque Slope ft-Ibs/psi (nm/kPa) | 0.90 | 0.18 | | Max Torque ft-lbs (nm) | 650 | 881 | | | | |
| Rotation Rev/Gal (Rev/liter) | 5.42 | 1.43 | | Stall Torque ft-lbs (nm) | 975 | 1,322 | | | | |
| Off Bottom Pressure-psi (kPa) | 100 | 689 | | Max HP (kW) | 45 | 33 | | | | |



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| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | | | |
|--|-----------|-----------|-------------------------------|--------|--------|--|--|--|--|--|
| Physical Data | Inches | MM | MM Axial Bearing Load Ratings | | | | | | | |
| Motor Overall Length | 120.50 | 3,061 | | lbs | Kg | | | | | |
| Motor Weight | 65 | 29 | Dynamic Compression/Tension | 7,000 | 3,175 | | | | | |
| Bearing Assy MU Length | 25.375 | 645 | Static Compression/Tension | 11,000 | 4,990 | | | | | |
| Top Connection | 1.50" MT | 1.50" MT | Max Overpull to Re-Run | 11,000 | 4,990 | | | | | |
| Bit Connection | 1.50" MT | 1.50" MT | Max Bit Overpull (80%) | 83,000 | 37,649 | | | | | |
| Bit Size | 2.18-3.25 | 55.5-82.5 | Max Body Overpull (80%) | 83,000 | 37,649 | | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | | | | |
|------------------------------|--------|----------|--|-----------------------|--------|--------|--|--|--|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | | | | |
| Overall Length | 79 | 2,007 | | Overall Length | 88 | 2,235 | | | | | |
| Contour Length | 77 | 1,956 | | Tube O.D. | 2.125 | 54 | | | | | |
| Major Diameter | 1.236 | 31.39 | | Tube I.D. | 1.75 | 44 | | | | | |
| Minor Diameter | 0.888 | 23 | | Rubber Cutback-Top | 5.25 | 133 | | | | | |
| Eccentricity | 0.087 | 2.21 | | Rubber Cutback-Bottom | 9.5 | 241 | | | | | |
| Head O.D. | 1.42 | 36 | | Stages | 6 | 152 | | | | | |
| Weight-lbs (kg) | 23 | 10 | | Weight-lbs (kg) | 33 | 15 | | | | | |
| Thread Form | T1 o | T1 or T2 | | Thread Form | Contac | t CTRT | | | | | |

| PERFORMANCE SUMMARY | | | | | | | | | | |
|----------------------------------|---------|---------|--------------------------------|-------|--------|--|--|--|--|--|
| Flow Range gpm (lpm) | 20-60 | 76-189 | Max Diff Pressure-psi (kPa) | 1,410 | 9,722 | | | | | |
| Bit Speed Range (rpm) | 260-770 | 260-770 | Stall Diff Pressusre-psi (kPa) | 2,230 | 15,375 | | | | | |
| Torque Slope ft-lbs/psi (nm/kPa) | 0.24 | 0.05 | Max Torque ft-lbs (nm) | 338 | 459 | | | | | |
| Rotation Rev/Gal (Rev/liter) | 10.25 | 3.39 | Stall Torque ft-lbs (nm) | 540 | 732 | | | | | |
| Off Bottom Pressure-psi (kPa) | 60 | 414 | Max HP (kW) | 49 | 37 | | | | | |



6



Revision: E 1/6/2021

| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | |
|--|-----------|--------------------------------------|---|--|--|--|--|
| Physical Data | Inches | Inches MM Axial Bearing Load Ratings | | | | | |
| Motor Overall Length | 120.50 | 3,061 | lbs Kg | | | | |
| Motor Weight | 65 | 29 | Dynamic Compression/Tension 7,000 3,175 | | | | |
| Bearing Assy MU Length | 25.375 | 645 | Static Compression/Tension 11,000 4,990 | | | | |
| Top Connection | 1.50" MT | 1.50" MT | Max Overpull to Re-Run 11,000 4,990 | | | | |
| Bit Connection | 1.50" MT | 1.50" MT | Max Bit Overpull (80%) 83,000 37,649 | | | | |
| Bit Size | 2.18-3.25 | 55.5-82.5 | Max Body Overpull (80%) 83,000 37,649 | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | |
|------------------------------|--------|-------|--|-----------------------|--------|--------|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | |
| Overall Length | 79 | 2,007 | | Overall Length | 88 | 2,235 | | |
| Contour Length | 77 | 1,956 | | Tube O.D. | 2.125 | 54 | | |
| Major Diameter | 1.236 | 31.39 | | Tube I.D. | 1.75 | 44 | | |
| Minor Diameter | 0.888 | 23 | | Rubber Cutback-Top | 5.25 | 133 | | |
| Eccentricity | 0.087 | 2.21 | | Rubber Cutback-Bottom | 9.5 | 241 | | |
| Head O.D. | 1.42 | 36 | | Stages | 6 | 152 | | |
| Weight-lbs (kg) | 23 | 10 | | Weight-lbs (kg) | 33 | 15 | | |
| Thread Form | T1 o | r T2 | | Thread Form | Contac | t CTRT | | |

| PERFORMANCE SUMMARY | | | | | | | |
|----------------------------------|---------|---------|---|--|--|--|--|
| Flow Range gpm (lpm) | 20-60 | 76-227 | Max Diff Pressure-psi (kPa) 1,500 10,342 | | | | |
| Bit Speed Range (rpm) | 272-816 | 272-816 | Stall Diff Pressusre-psi (kPa) 2,250 15,513 | | | | |
| Torque Slope ft-Ibs/psi (nm/kPa) | 0.17 | 0.03 | Max Torque ft-lbs (nm) 253 343 | | | | |
| Rotation Rev/Gal (Rev/liter) | 13.60 | 3.59 | Stall Torque ft-lbs (nm) 380 515 | | | | |
| Off Bottom Pressure-psi (kPa) | 450 | 3,103 | Max HP (kW) 53 39 | | | | |





| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | |
|--|------------|-------------------------------|--|--|--|--|--|
| Physical Data | Inches | MM Axial Bearing Load Ratings | | | | | |
| Motor Overall Length | 160.00 | 4,064 | lbs Kg | | | | |
| Motor Weight | 196 | 89 | Dynamic Compression/Tension 10,000 4,536 | | | | |
| Bearing Assy MU Length | 53 | 1,346 | Static Compression/Tension 14,000 6,350 | | | | |
| Top Connection | 2-3/8" PAC | 2-3/8" PAC | Max Overpull to Re-Run 14,000 6,350 | | | | |
| Bit Connection | 2-3/8" PAC | 2-3/8" PAC | Max Bit Overpull (80%) 156,000 70,762 | | | | |
| Bit Size | 3.25-4.50 | 82.55-114.30 | Max Body Overpull (80%) 158,824 72,043 | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | |
|------------------------------|--------|-------|--|-----------------------|--------|--------|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | |
| Overall Length | 89 | 2,261 | | Overall Length | 99 | 2,515 | | |
| Contour Length | 86 | 2,184 | | Tube O.D. | 2.875 | 73 | | |
| Major Diameter | 1.675 | 42.55 | | Tube I.D. | 2.375 | 60 | | |
| Minor Diameter | N/A | N/A | | Rubber Cutback-Top | 7 | 178 | | |
| Eccentricity | 0.118 | 3.00 | | Rubber Cutback-Bottom | 8.5 | 216 | | |
| Head O.D. | 18 | 46 | | Stages | 3.5 | 89 | | |
| Weight-lbs (kg) | 44 | 20 | | Weight-Ibs (kg) | 67 | 30 | | |
| Thread Form | T1 o | r T2 | | Thread Form | Contac | t CTRT | | |

| PERFORMANCE SUMMARY | | | | | | | | |
|----------------------------------|---------|---------|------------------|----------------|-------|-------|--|--|
| Flow Range gpm (lpm) | 60-126 | 227-447 | /Jax Diff Pressเ | ure-psi (kPa) | 830 | 5,723 | | |
| Bit Speed Range (rpm) | 250-520 | 250-520 | tall Diff Pressu | usre-psi (kPa) | 1,300 | 8,963 | | |
| Torque Slope ft-lbs/psi (nm/kPa) | 0.78 | 0.15 | /lax Torque ft- | lbs (nm) | 650 | 881 | | |
| Rotation Rev/Gal (Rev/liter) | 4.13 | 1.09 | tall Torque ft- | lbs (nm) | 1,018 | 1,380 | | |
| Off Bottom Pressure-psi (kPa) | 70 | 483 | Лах HP (kW) | | 61 | 45 | | |



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2.87" 9/10 Lobe, 6.8 Stage

Revision: A 4/1/202

| SRT M/M THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | |
|---|------------|--------------------------------------|--|--|--|--|--|
| Physical Data | Inches | Inches MM Axial Bearing Load Ratings | | | | | |
| Motor Overall Length | 143.50 | 3,645 | lbs Kg | | | | |
| Motor Weight | 160 | 73 | Dynamic Compression/Tension 10,000 4,536 | | | | |
| Bearing Assy MU Length | 61 | 1,549 | Static Compression/Tension 14,000 6,350 | | | | |
| Top Connection | 2-3/8" PAC | 2-3/8" PAC | Max Overpull to Re-Run 14,000 6,350 | | | | |
| Bit Connection | 2-3/8" PAC | 2-3/8" PAC | Max Bit Overpull (80%) 156,000 70,762 | | | | |
| Bit Size | 3.25-4.50 | 82.55-114.30 | Max Body Overpull (80%) 158,824 72,043 | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | |
|------------------------------|--------|-------|--|-----------------------|--------|--------|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | |
| Overall Length | 78.75 | 2,000 | | Overall Length | 83 | 2,096 | | |
| Contour Length | 72.5 | 1,842 | | Tube O.D. | 2.87 | 73 | | |
| Major Diameter | 2.1 | 53.34 | | Tube I.D. | 2.31 | 59 | | |
| Minor Diameter | 1.68 | 43 | | Rubber Cutback-Top | 4.38 | 111 | | |
| Eccentricity | 0.212 | 5.38 | | Rubber Cutback-Bottom | 8.25 | 210 | | |
| Head O.D. | 2.13 | 54 | | Stages | 6.8 | 173 | | |
| Weight-Ibs (kg) | 60 | 27 | | Weight-lbs (kg) | 75 | 34 | | |
| Thread Form | T1 o | r T2 | | Thread Form | Contac | t CTRT | | |

| PERFORMANCE SUMMARY | | | | | | | |
|----------------------------------|---------|---------|---|--|--|--|--|
| Flow Range gpm (lpm) | 42-147 | 159-556 | Max Diff Pressure-psi (kPa) 1,333 9,191 | | | | |
| Bit Speed Range (rpm) | 147-516 | 147-516 | Stall Diff Pressusre-psi (kPa) 2,000 13,790 | | | | |
| Torque Slope ft-Ibs/psi (nm/kPa) | 0.90 | 0.18 | Max Torque ft-lbs (nm) 1,200 1,627 | | | | |
| Rotation Rev/Gal (Rev/liter) | 3.51 | 0.93 | Stall Torque ft-lbs (nm) 1,800 2,440 | | | | |
| Off Bottom Pressure-psi (kPa) | 100 | 689 | Max HP (kW) 114 85 | | | | |





| Revision: B 5/15/2020 |
|-----------------------|
|-----------------------|

| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | |
|--|------------|-------------------------------|--|--|--|--|--|
| Physical Data | Inches | MM Axial Bearing Load Ratings | | | | | |
| Motor Overall Length | 149.00 | 3,785 | lbs Kg | | | | |
| Motor Weight | 210 | 95 | Dynamic Compression/Tension 10,000 4,536 | | | | |
| Bearing Assy MU Length | 53 | 1,346 | Static Compression/Tension 14,000 6,350 | | | | |
| Top Connection | 2-3/8" PAC | 2-3/8" PAC | Max Overpull to Re-Run 14,000 6,350 | | | | |
| Bit Connection | 2-3/4" PAC | 2-3/8" PAC | Max Bit Overpull (80%) 156,000 70,762 | | | | |
| Bit Size | 3.25-4.50 | 82.55-114.30 | Max Body Overpull (80%) 158,824 72,043 | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| Rotor | Inches | MM | Stator | Inches | Stator Inches I | MN |
|-----------------|--------|-------|----------------------|--------|------------------|------|
| Overall Length | 89 | 2,261 | Overall Length | 99 | ngth 99 2 | ,502 |
| Contour Length | 86 | 2,184 | Tube O.D. | 2.875 | 2.875 | 73 |
| Major Diameter | 1.65 | 41.91 | Tube I.D. | 2.375 | 2.375 | 60 |
| Minor Diameter | 1.179 | 30 | Rubber Cutback-Top | 7.375 | tback-Top 7.375 | 187 |
| Eccentricity | 0.118 | 3.00 | Rubber Cutback-Botto | om 8.5 | tback-Bottom 8.5 | 216 |
| Head O.D. | 1.77 | 45 | Stages | 3.5 | 3.5 | 89 |
| Weight-lbs (kg) | 45 | 20 | Weight-lbs (kg) | 67 | (kg) 67 | 30 |
| Thread Form | T1 o | r T2 | Thread Form | Conta | m Contact CTP | т |

| PERFORMANCE SUMMARY | | | | | | | |
|----------------------------------|---------|---------|--------------------------------|-------|-------|--|--|
| Flow Range gpm (lpm) | 60-168 | 227-636 | Max Diff Pressure-psi (kPa) | 875 | 6,033 | | |
| Bit Speed Range (rpm) | 211-591 | 211-591 | Stall Diff Pressusre-psi (kPa) | 1,325 | 9,136 | | |
| Torque Slope ft-lbs/psi (nm/kPa) | 0.58 | 0.11 | Max Torque ft-lbs (nm) | 508 | 689 | | |
| Rotation Rev/Gal (Rev/liter) | 3.52 | 0.93 | Stall Torque ft-lbs (nm) | 762 | 1,033 | | |
| Off Bottom Pressure-psi (kPa) | 22 | 152 | Max HP (kW) | 57 | 43 | | |





Revision: A

| SRT M/M THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | |
|---|-------------------|------------|--|--|--|--|
| Physical Data | Metric | Imperial | | | | |
| Flow range | 190-567 LPM | 50-150 GPM | | | | |
| Max operating temperature | 500 °C | 932 °F | | | | |
| Revolutions per unit volume | 0,59 RPL 2,22 RPG | | | | | |
| No load speed | 111-333 RPM | | | | | |
| Maximum differential pressure | 172 Bar | 2500 PSI | | | | |
| Maximum torque | 2440 Nm | 1800 ft-lb | | | | |
| Motor Power | 54 Kw | 73 HP | | | | |

Note: Performance data is for reference only and is subject to change.

| ROTOR SPECIFICATIONS | | | | | | |
|----------------------|-----------------------|----------|--|--|--|--|
| Physical Data | Metric | Imperial | | | | |
| Total length | 1922 mm | 75,6 in | | | | |
| Profile length | 1810 mm | 71,3 in | | | | |
| Head length | 100 mm | 3,9 in | | | | |
| Rotor eccentricity | 5,3 mm | 0,21 in | | | | |
| Major diameter | 53,3 mm | 2,10 in | | | | |
| Minor diameter | 42,7 mm | 1,68 in | | | | |
| Head diameter | 53,3 mm | 2,10 in | | | | |
| Material | 34CrAINi7-10 (1.8550) | | | | | |
| Weight | 26,4 Kg | 58,3 lbs | | | | |

| STATOR SPECIFICATIONS | | | | | |
|-----------------------|-----------------------|----------|--|--|--|
| Physical Data | Metric | Imperial | | | |
| Total length | 2100 mm | 82,7 in | | | |
| Profile length | 1810 mm | 73,7 in | | | |
| Stator outer diameter | 73,6 mm | 2,90 in | | | |
| Major diameter | 58,7 mm | 2,31 in | | | |
| Minor diameter | 48,0 mm | 1,89 in | | | |
| Material | 34CrAINi7-10 (1.8550) | | | | |
| Weight | 35,7 Kg | 78,6 lbs | | | |

**Custom lengths and materials are available upon request.





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2024



287SRT2-AB564.7

2.87" 5/6 Lobe, 4.7 Stage

Revision: A 1/12/2021

| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | |
|--|---|--------------|--|--|--|--|
| Physical Data | Inches | MM | Axial Bearing Load Ratings | | | |
| Motor Overall Length | 162.50 | 4,128 | lbs Kg | | | |
| Motor Weight | 210 | 95 | Dynamic Compression/Tension 10,000 4,536 | | | |
| Bearing Assy MU Length | 61 | 1,549 | Static Compression/Tension 14,000 6,350 | | | |
| Top Connection | 2-3/8"PAC | 2-3/8" PAC | Max Overpull to Re-Run 14,000 6,350 | | | |
| Bit Connection | 2-3/8"PAC | 2-3/8" PAC | Max Bit Overpull (80%) 156,000 70,762 | | | |
| Bit Size | 3.25-4.50 | 82.55-114.30 | Max Body Overpull (80%) 158,824 72,043 | | | |
| Note: Load ratings can vary wit | Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive | | | | | |
| POWER SECTION SPECIFICATIONS | | | | | | |
| Rotor | Inches | MM | Stator Inches MM | | | |
| Overall Length | 92 | 2,337 | Overall Length 102 2,578 | | | |

| | 52 | 2,007 | | 101 | 2,370 |
|-----------------|-------|-----------------|-----------------------|--------|--------|
| Contour Length | 85 | 2,159 | 2,159 Tube O.D. | | 73 |
| Major Diameter | 1.909 | 48.49 Tube I.D. | | 2.375 | 60 |
| Minor Diameter | N/A | N/A | Rubber Cutback-Top | 4 | 102 |
| Eccentricity | 0.136 | 3.45 | Rubber Cutback-Bottom | 11.81 | 300 |
| Head O.D. | 1.875 | 48 | Stages | 4.7 | 119 |
| Weight-lbs (kg) | 55 | 25 | Weight-lbs (kg) | 70 | 32 |
| Thread Form | T1 o | r T2 | Thread Form | Contac | t CTRT |

| PERFORMANCE SUMMARY | | | | | | | |
|----------------------------------|---------|---------|--|--------------------------------|-------|--------|--|
| Flow Range gpm (lpm) | 50-150 | 189-568 | | Max Diff Pressure-psi (kPa) | 1,110 | 7,653 | |
| Bit Speed Range (rpm) | 170-500 | 170-500 | | Stall Diff Pressusre-psi (kPa) | 1,740 | 11,997 | |
| Torque Slope ft-lbs/psi (nm/kPa) | 0.75 | 0.15 | | Max Torque ft-lbs (nm) | 836 | 1,133 | |
| Rotation Rev/Gal (Rev/liter) | 3.33 | 0.88 | | Stall Torque ft-lbs (nm) | 1,310 | 1,776 | |
| Off Bottom Pressure-psi (kPa) | 80 | 552 | | Max HP (kW) | 97 | 72 | |



2024



Revision: A

| SRT M/M THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | |
|---|-----------------|------------|--|--|--|--|
| Physical Data | Metric | Imperial | | | | |
| Flow range | 190-795 LPM | 50-210 GPM | | | | |
| Max operating temperature | 500 °C | 932 °F | | | | |
| Revolutions per unit volume | 0,4 RPL 1,5 RPG | | | | | |
| No load speed | 75-315 RPM | | | | | |
| Maximum differential pressure | 172 Bar | 2500 PSI | | | | |
| Maximum torque | 2305 Nm | 1700 ft-lb | | | | |
| Motor Power | 52 Kw | 70 HP | | | | |

Note: Performance data is for reference only and is subject to change.

| ROTOR SPECIFICATIONS | | | | | | |
|----------------------|------------------|----------|--|--|--|--|
| Physical Data | Metric | Imperial | | | | |
| Total length | 784 mm | 30,9 in | | | | |
| Profile length | 682 mm | 26,9 in | | | | |
| Head length | 102 mm 4,0 in | | | | | |
| Rotor eccentricity | 4,7 mm 0,19 in | | | | | |
| Major diameter | 52,6 mm | 2,07 in | | | | |
| Minor diameter | 43,1 mm | 1,70 in | | | | |
| Head diameter | 43,1 mm | 1,70 in | | | | |
| Material | 42CrMo4 (1.7225) | | | | | |
| Weight | 10,9 Kg | 24,0 lbs | | | | |

| STATOR SPECIFICATIONS | | | | | | |
|-----------------------|-----------------------|------------------|--|--|--|--|
| Physical Data | Metric | Imperial | | | | |
| Total length | 936 mm | 36 <i>,</i> 9 in | | | | |
| Profile length | 682 mm | 26 <i>,</i> 9 in | | | | |
| Stator outer diameter | 73,6 mm | 2,90 in | | | | |
| Major diameter | 57,3 mm | 2,26 in | | | | |
| Minor diameter | 47,8 mm | 1,88 in | | | | |
| Material | 34CrAINi7-10 (1.8550) | | | | | |
| Weight | 15,9 Kg | 35,1 lbs | | | | |

**Custom lengths and materials are available upon request.



PERFORMANCE CURVE

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287SRT2-AB454.0

2.87" 4/5 Lobe, 4.0 Stage

Revision: A 1/13/2021

| SRT-G3 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | |
|--|-------------------|-----------------|----------------------------|------------------------------|---------|--------|
| Physical Data | Inches | MM | Axial Bearing Load Ratings | | | |
| Motor Overall Length | 166.00 | 4,216 | | | lbs | Kg |
| Motor Weight | 212 | 96 | | Dynamic Compression/Tension | 10,000 | 4,536 |
| Bearing Assy MU Length | 53 | 1,346 | | Static Compression/Tension | 14,000 | 6,350 |
| Top Connection | 2-3/8" PAC | 2-3/8" PAC | | Max Overpull to Re-Run | 14,000 | 6,350 |
| Bit Connection | 2-3/8" PAC | 2-3/8" PAC | | Max Bit Overpull (80%) | 156,000 | 70,762 |
| Bit Size | 3.25-4.50 | 82.55-114.30 | | Max Body Overpull (80%) | 158,824 | 72,043 |
| Note: Load ratings can vary wit | h different bit : | styles based of | on a | aggressive to non-aggressive | | |
| | PC | WER SECTION | N SI | PECIFICATIONS | | |
| Rotor | Inches | MM | | Stator | Inches | MM |
| Overall Length | 102 | 2,591 | | Overall Length | 105 | 2,667 |
| Contour Length | 98 | 2,489 | | Tube O.D. | 2.875 | 73 |
| Major Diamotor | 1 9/2 | 16.91 | | Tubal D | 2 275 | 60 |

| Thread Form | T1 o | r T2 | Thread Form | Conta | ct CTRT |
|-----------------|-------|-------|-----------------------|-------|---------|
| Weight-Ibs (kg) | 55 | 25 | Weight-lbs (kg) | 72 | 33 |
| Head O.D. | 1.8 | 46 | Stages | 4 | 102 |
| Eccentricity | 0.156 | 3.96 | Rubber Cutback-Bottom | 8 | 203 |
| Minor Diameter | N/A | N/A | Rubber Cutback-Top | 4 | 102 |
| Major Diameter | 1.843 | 46.81 | Tube I.D. | 2.375 | 60 |

| PERFORMANCE SUMMARY | | | | | | | |
|-------------------------------------|--------|---------|--|--------------------------------|-------|--------|--|
| Flow Range gpm (lpm) | 70-210 | 265-795 | | Max Diff Pressure-psi (kPa) | 940 | 6,481 | |
| Bit Speed Range (rpm) | 0-0 | 0-0 | | Stall Diff Pressusre-psi (kPa) | 1,490 | 10,273 | |
| Torque Slope ft-lbs/psi (nm/kPa) | 0.91 | 0.18 | | Max Torque ft-lbs (nm) | 852 | 1,155 | |
| Rotation Rev/Gal (Rev/liter) | 2.95 | 0.78 | | Stall Torque ft-lbs (nm) | 1,350 | 1,830 | |
| Off Bottom Pressure-psi (kPa) | 100 | 689 | | Max HP (kW) | 115 | 86 | |





287SRT3-AB567.0 2.87" 5/6 Lobe, 7.0 Stage

Revision: B 1/6/2021

| SRT-G3 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | |
|--|------------|--------------|-----------------------------------|----------|--|--|--|--|
| Physical Data | Inches | MM | MM Axial Bearing Load Ratings | | | | | |
| Motor Overall Length | 170.00 | 4,318 | lbs | Kg | | | | |
| Motor Weight | 224 | 102 | ynamic Compression/Tension 10,000 | 4,536 | | | | |
| Bearing Assy MU Length | 53 | 1,346 | tatic Compression/Tension 14,000 | 6,350 | | | | |
| Top Connection | 2-3/8" PAC | 2-3/8" PAC | Nax Overpull to Re-Run 14,000 | 6,350 | | | | |
| Bit Connection | 2-3/8" PAC | 2-3/8" PAC | /lax Bit Overpull (80%) 156,00 |) 70,762 | | | | |
| Bit Size | 3.25-4.50 | 82.55-114.30 | /lax Body Overpull (80%) 158,82 | 1 72,043 | | | | |
| Natas I and until na anno sam sum | | | | | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | |
|------------------------------|----------|-------|--|-----------------------|--------|--------|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | |
| Overall Length | 110 | 2,794 | | Overall Length | 117 | 2,972 | | |
| Contour Length | 106 | 2,692 | | Tube O.D. | 2.875 | 73 | | |
| Major Diameter | 1.658 | 42.11 | | Tube I.D. | 2.375 | 60 | | |
| Minor Diameter | N/A | N/A | | Rubber Cutback-Top | 8 | 203 | | |
| Eccentricity | 0.122 | 3.10 | | Rubber Cutback-Bottom | 8.5 | 216 | | |
| Head O.D. | 1.65 | 42 | | Stages | 7 | 178 | | |
| Weight-lbs (kg) | 51 | 23 | | Weight-lbs (kg) | 82 | 37 | | |
| Thread Form | T1 or T2 | | | Thread Form | Contac | t CTRT | | |

| PERFORMANCE SUMMARY | | | | | | | |
|----------------------------------|---------|---------|--|--------------------------------|-------|--------|--|
| Flow Range gpm (Ipm) | 30-110 | 114-416 | | Max Diff Pressure-psi (kPa) | 1,662 | 11,459 | |
| Bit Speed Range (rpm) | 160-600 | 160-600 | | Stall Diff Pressusre-psi (kPa) | 2,600 | 17,926 | |
| Torque Slope ft-lbs/psi (nm/kPa) | 0.47 | 0.09 | | Max Torque ft-lbs (nm) | 780 | 1,057 | |
| Rotation Rev/Gal (Rev/liter) | 5.45 | 1.44 | | Stall Torque ft-lbs (nm) | 1,220 | 1,654 | |
| Off Bottom Pressure-psi (kPa) | 80 | 552 | | Max HP (kW) | 107 | 80 | |





PN: 312SRT3-AB563.5 3.12" 5/6 Lobe, 3.5 Stage

Revision: B 1/6/2021

| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | |
|--|-------------|------------|--|--|--|--|
| Physical Data | Inches | MM | MM Axial Bearing Load Ratings | | | |
| Motor Overall Length | 159.40 | 4,049 | lbs Kg | | | |
| Motor Weight | 185 | 84 | Dynamic Compression/Tension 12,000 5,443 | | | |
| Bearing Assy MU Length | 53.62 | 1,362 | Static Compression/Tension 36,000 16,330 | | | |
| Top Connection | 2-3/8" Reg | 2-3/8" Reg | Max Overpull to Re-Run 36,000 16,330 | | | |
| Bit Connection | 2-3/8" Reg | 2-3/8" Reg | Max Bit Overpull (80%) 145,000 65,772 | | | |
| Bit Size | 3.50"-5.50" | 88.9-139.7 | Max Body Overpull (80%) 182,000 82,555 | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | |
|------------------------------|--------|----------|--|-----------------------|--------|--------|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | |
| Overall Length | 77.5 | 1,969 | | Overall Length | 88.00 | 2,235 | | |
| Contour Length | 75.5 | 1,918 | | Tube O.D. | 3.13 | 80 | | |
| Major Diameter | 2.174 | 55.22 | | Tube I.D. | 2.63 | 67 | | |
| Minor Diameter | N/A | N/A | | Rubber Cutback-Top | 4.00 | 102 | | |
| Eccentricity | 0.156 | 3.96 | | Rubber Cutback-Bottom | 9.50 | 241 | | |
| Head O.D. | 2.18 | 55.25 | | Stages | 3.5 | 89 | | |
| Weight-Ibs (kg) | 80 | 36 | | Weight-Ibs (kg) | 72 | 33 | | |
| Thread Form | T1 o | T1 or T2 | | Thread Form | Contac | t CTRT | | |

| PERFORMANCE SUMMARY | | | | | | | |
|----------------------------------|---------|---------|--|--------------------------------|-------|-------|--|
| Flow Range gpm (lpm) | 100-210 | 380-795 | | Max Diff Pressure-psi (kPa) | 825 | 5,688 | |
| Bit Speed Range (rpm) | 230-470 | 230-470 | | Stall Diff Pressusre-psi (kPa) | 1,300 | 8,963 | |
| Torque Slope ft-lbs/psi (nm/kPa) | 1.20 | 0.24 | | Max Torque ft-lbs (nm) | 990 | 1,342 | |
| Rotation Rev/Gal (Rev/liter) | 2.25 | 0.59 | | Stall Torque ft-lbs (nm) | 1,560 | 2,115 | |
| Off Bottom Pressure-psi (kPa) | 90 | 621 | | Max HP (kW) | 101 | 75 | |





3.12" 9/10 Lobe, 5.2 Stage

Revision: A

| SRT M/M | | | | | | | | |
|---------------------------------------|-------------|------------|--|--|--|--|--|--|
| THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | |
| Physical Data Metric Imperial | | | | | | | | |
| Flow range | 190-795 LPM | 50-210 GPM | | | | | | |
| Max operating temperature | 500 °C | 932 °F | | | | | | |
| Revolutions per unit volume | 0,58 RPL | 2,2 RPG | | | | | | |
| No load speed | 110-462 | 2 RPM | | | | | | |
| Maximum differential pressure | 172 Bar | 2500 PSI | | | | | | |
| Maximum torque | 2847 Nm | 2100 ft-lb | | | | | | |
| Motor Power | 102 Kw | 137 HP | | | | | | |

Note: Performance data is for reference only and is subject to change.

| ROTOR SPECIFICATIONS | | | | | | | |
|----------------------|-------------|------------|--|--|--|--|--|
| Physical Data | Metric | Imperial | | | | | |
| Total length | 1936 mm | 76,2 in | | | | | |
| Profile length | 1795 mm | 70,7 in | | | | | |
| Head length | 125 mm | 4,9 in | | | | | |
| Rotor eccentricity | 5,8 mm | 0,23 in | | | | | |
| Major diameter | 58,3 mm | 2,29 in | | | | | |
| Minor diameter | 46,6 mm | 1,84 in | | | | | |
| Head diameter | 59,0 mm | 2,32 in | | | | | |
| Material | 34CrAINi7-1 | 0 (1.8550) | | | | | |
| Weight | 31,9 Кg | 70,4 lbs | | | | | |

| STATOR SPECIFICATIONS | | | | | | |
|-----------------------|------------------|----------|--|--|--|--|
| Physical Data | Metric | Imperial | | | | |
| Total length | 2100 mm | 82,7 in | | | | |
| Profile length | 1794 mm | 70,6 in | | | | |
| Stator outer diameter | 79 <i>,</i> 4 mm | 3,13 in | | | | |
| Major diameter | 64 <i>,</i> 1 mm | 2,52 in | | | | |
| Minor diameter | 52,5 mm | 2,06 in | | | | |
| Material | 42CrMo4 (1.7225) | | | | | |
| Weight | 40,8 Kg | 90,0 lbs | | | | |

**Custom lengths and materials are available upon request.





PN: 312SRT2-AB565.0 3.12" 5/6 Lobe, 5.0 Stage

Revision: A 1/6/2021

| SRT-G3 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | |
|---|-------------|------------|--|--|--|--|--|
| Physical Data | Inches | MM | Axial Bearing Load Ratings | | | | |
| Motor Overall Length | 173.00 | 4,394 | lbs Kg | | | | |
| Motor Weight | 261 | 118 | Dynamic Compression/Tension 12,000 5,443 | | | | |
| Bearing Assy MU Length | 55.5 | 1,410 | Static Compression/Tension 36,000 16,330 | | | | |
| Top Connection | 2-3/8" Reg | 2-3/8" Reg | Max Overpull to Re-Run 36,000 16,330 | | | | |
| Bit Connection | 2-3/8" Reg | 2-3/8" Reg | Max Bit Overpull (80%) 145,000 65,772 | | | | |
| Bit Size | 3.50"-5.50" | 88.9-139.7 | Max Body Overpull (80%) 182,000 82,555 | | | | |
| Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive | | | | | | | |

| POWER SECTION SPECIFICATIONS | | | | | | | | |
|------------------------------|--------|----------|--|-----------------------|--------|--------|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | |
| Overall Length | 99 | 2,515 | | Overall Length | 106 | 2,692 | | |
| Contour Length | 95 | 2,413 | | Tube O.D. | 3.13 | 80 | | |
| Major Diameter | 2.073 | 52.65 | | Tube I.D. | 2.63 | 67 | | |
| Minor Diameter | N/A | N/A | | Rubber Cutback-Top | 5.63 | 143 | | |
| Eccentricity | 0.148 | 3.76 | | Rubber Cutback-Bottom | 9.5 | 241 | | |
| Head O.D. | 1.85 | 47 | | Stages | 5 | 127 | | |
| Weight-Ibs (kg) | 74 | 34 | | Weight-lbs (kg) | 79 | 36 | | |
| Thread Form | T1 o | T1 or T2 | | Thread Form | Contac | t CTRT | | |

| PERFORMANCE SUMMARY | | | | | | | | | |
|---------------------------------|---------|---------|--|--------------------------------|-------|--------|--|--|--|
| Flow Range gpm (lpm) | 100-210 | 379-795 | | Max Diff Pressure-psi (kPa) | 1,185 | 8,170 | | | |
| Bit Speed Range (rpm) | 260-560 | 260-560 | | Stall Diff Pressusre-psi (kPa) | 1,860 | 12,824 | | | |
| Torque Slope ft-lbs/psi(nm/kPa) | 1.04 | 0.20 | | Max Torque ft-lbs (nm) | 1,233 | 1,671 | | | |
| Rotation Rev/Gal (Rev/liter) | 2.64 | 0.70 | | Stall Torque ft-lbs (nm) | 1,935 | 2,624 | | | |
| Off Bottom Pressure-psi (kPa) | 110 | 758 | | Max HP (kW) | 147 | 109 | | | |



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Revision: F 1/6/2021

| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | |
|--|-------------|--------------------------------------|-----------------------------|---------|--------|--|--|--|
| Physical Data | Inches | Inches MM Axial Bearing Load Ratings | | | | | | |
| Motor Overall Length | 165.40 | 4,201 | | lbs | Kg | | | |
| Motor Weight | 235 | 107 | Dynamic Compression/Tension | 12,000 | 5,443 | | | |
| Bearing Assy MU Length | 55.62 | 1,413 | Static Compression/Tension | 36,000 | 16,330 | | | |
| Top Connection | 2-3/8" Reg | 2-3/8" Reg | Max Overpull to Re-Run | 36,000 | 16,330 | | | |
| Bit Connection | 2-3/8" Reg | 2-3/8" Reg | Max Bit Overpull (80%) | 145,000 | 65,772 | | | |
| Bit Size | 3.50"-5.50" | 88.9-139.7 | Max Body Overpull (80%) | 182,000 | 82,555 | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | | |
|------------------------------|--------|-------|-----------------------|--------|--------|--|--|--|--|
| Rotor | Inches | MM | Stator | Inches | MM | | | | |
| Overall Length | 89.25 | 2,267 | Overall Length | 99.87 | 2,537 | | | | |
| Contour Length | 86.5 | 2,197 | Tube O.D. | 3.13 | 80 | | | | |
| Major Diameter | 2.12 | 53.85 | Tube I.D. | 2.63 | 67 | | | | |
| Minor Diameter | 0.000 | 0.000 | Rubber Cutback-Top | 7.12 | 181 | | | | |
| Eccentricity | 0.122 | 3.10 | Rubber Cutback-Bottom | 9.87 | 251 | | | | |
| Head O.D. | 2.05 | 51.94 | Stages | 2.5 | 64 | | | | |
| Weight-Ibs (kg) | 58 | 26 | Weight-lbs (kg) | 64 | 29 | | | | |
| Thread Form | T1 o | r T2 | Thread Form | Conta | t CTRT | | | | |

| PERFORMANCE SUMMARY | | | | | | | | | |
|----------------------------------|---------|---------|--------------------------------|-------|-------|--|--|--|--|
| Flow Range gpm (lpm) | 100-210 | 379-795 | Max Diff Pressure-psi (kPa) | 590 | 4,068 | | | | |
| Bit Speed Range (rpm) | 144-303 | 144-303 | Stall Diff Pressusre-psi (kPa) | 930 | 6,412 | | | | |
| Torque Slope ft-lbs/psi (nm/kPa) | 1.97 | 0.39 | Max Torque ft-lbs (nm) | 1,162 | 1,576 | | | | |
| Rotation Rev/Gal (Rev/liter) | 1.24 | 0.33 | Stall Torque ft-lbs (nm) | 1,830 | 2,481 | | | | |
| Off Bottom Pressure-psi (kPa) | 60 | 414 | Max HP (kW) | 72 | 54 | | | | |



2024



PN: 338SRT3-AB563.2

3.38" 5/6 Lobe, 3.2 Stage

Revision: B 6/18/2020

| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | |
|--|-------------|-------------------------------|----|-----------------------------|---------|---------|--|--|
| Physical Data | Inches | MM Axial Bearing Load Ratings | | | | | | |
| Motor Overall Length | 163.00 | 4,140 | ſſ | | lbs | Kg | | |
| Motor Weight | 235 | 107 | (| Dynamic Compression/Tension | 13,250 | 6,010 | | |
| Bearing Assy MU Length | 58.25 | 1,480 | 9 | Static Compression/Tension | 36,650 | 16,624 | | |
| Top Connection | 2-3/8" Reg | 2-3/8" Reg | 1 | Max Overpull to Re-Run | 36,650 | 16,624 | | |
| Bit Connection | 2-3/8" Reg | 2-3/8" Reg | 1 | Max Bit Overpull (80%) | 232,000 | 105,235 | | |
| Bit Size | 3.75"-5.87" | 95.3-149.2 | ſ | Max Body Overpull (80%) | 230,000 | 104,328 | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | | | |
|------------------------------|--------|-------|--|-----------------------|--------|--------|--|--|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | | | |
| Overall Length | 90 | 2,286 | | Overall Length | 94 | 2,388 | | | | |
| Contour Length | 84 | 2,134 | | Tube O.D. | 3.38 | 86 | | | | |
| Major Diameter | 2.228 | 56.59 | | Tube I.D. | 2.75 | 70 | | | | |
| Minor Diameter | N/A | N/A | | Rubber Cutback-Top | 4 | 102 | | | | |
| Eccentricity | 0.161 | 4.09 | | Rubber Cutback-Bottom | 10.5 | 267 | | | | |
| Head O.D. | 2.25 | 57 | | Stages | 3.2 | 81 | | | | |
| Weight-Ibs (kg) | 0 | 0 | | Weight-Ibs (kg) | 0 | 0 | | | | |
| Thread Form | T1 o | r T2 | | Thread Form | Contac | t CTRT | | | | |

| PERFORMANCE SUMMARY | | | | | | | | | |
|---------------------------------|---------|---------|--|--------------------------------|-------|-------|--|--|--|
| Flow Range gpm (lpm) | 95-235 | 360-889 | | Max Diff Pressure-psi (kPa) | 760 | 5,240 | | | |
| Bit Speed Range (rpm) | 170-420 | 170-420 | | Stall Diff Pressusre-psi (kPa) | 1,190 | 8,205 | | | |
| Torque Slope ft-lbs/psi(nm/kPa) | 1.39 | 0.27 | | Max Torque ft-lbs (nm) | 1,060 | 1,437 | | | |
| Rotation Rev/Gal (Rev/liter) | 1.80 | 0.47 | | Stall Torque ft-lbs (nm) | 1,660 | 2,251 | | | |
| Off Bottom Pressure-psi (kPa) | 80 | 552 | | Max HP (kW) | 163 | 122 | | | |



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3.38" 5/6 Lobe, 3.5 Stage

Revision: C 1/6/2021

| SRT-G2 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | |
|--|-------------|------------|--|--|--|--|--|--|
| Physical Data | Inches | MM | MM Axial Bearing Load Ratings | | | | | |
| Motor Overall Length | 162.00 | 4,115 | lbs Kg | | | | | |
| Motor Weight | 205 | 93 | Dynamic Compression/Tension 13,250 6,010 | | | | | |
| Bearing Assy MU Length | 58.25 | 1,480 | Static Compression/Tension 36,650 16,624 | | | | | |
| Top Connection | 2-3/8" Reg | 2-3/8" Reg | Max Overpull to Re-Run 36,650 16,624 | | | | | |
| Bit Connection | 2-3/8" Reg | 2-3/8" Reg | Max Bit Overpull (80%) 232,000 105,235 | | | | | |
| Bit Size | 3.75"-5.87" | 95.3-149.2 | Max Body Overpull (80%) 230,000 104,328 | | | | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | | | |
|------------------------------|--------|-------|-----------------------|--------|--------|--|--|--|--|--|
| Rotor | Inches | MM | Stator | Inches | MM | | | | | |
| Overall Length | 77.5 | 1,969 | Overall Length | 88.00 | 2,235 | | | | | |
| Contour Length | 75.5 | 1,918 | Tube O.D. | 3.13 | 80 | | | | | |
| Major Diameter | 2.174 | 55.22 | Tube I.D. | 2.63 | 67 | | | | | |
| Minor Diameter | 0.000 | 0.000 | Rubber Cutback-Top | 4.00 | 102 | | | | | |
| Eccentricity | 0.156 | 3.96 | Rubber Cutback-Bottom | 9.50 | 241 | | | | | |
| Head O.D. | 2.18 | 55.25 | Stages | 3.5 | 89 | | | | | |
| Weight-lbs (kg) | 80 | 36 | Weight-Ibs (kg) | 72 | 33 | | | | | |
| Thread Form | T1 o | r T2 | Thread Form | Conta | t CTRT | | | | | |

| PERFORMANCE SUMMARY | | | | | | | | | |
|----------------------------------|---------|---------|--------------------------------|-------|-------|--|--|--|--|
| Flow Range gpm (lpm) | 100-210 | 380-795 | Max Diff Pressure-psi (kPa) | 830 | 5,723 | | | | |
| Bit Speed Range (rpm) | 230-470 | 230-470 | Stall Diff Pressusre-psi (kPa) | 1,300 | 8,963 | | | | |
| Torque Slope ft-lbs/psi (nm/kPa) | 1.20 | 0.24 | Max Torque ft-lbs (nm) | 996 | 1,350 | | | | |
| Rotation Rev/Gal (Rev/liter) | 2.25 | 0.59 | Stall Torque ft-lbs (nm) | 1,560 | 2,115 | | | | |
| Off Bottom Pressure-psi (kPa) | 90 | 621 | Max HP (kW) | 102 | 76 | | | | |





PN: 338SRT3-AB783.0 3.38" 7/8 Lobe, 3.0 Stage

Revision: B 1/12/2021

| SRT-G3 THRU TUBING DRILL MOTOR SPECIFICATION | | | | | | | | |
|--|-------------|------------|---|-----------------------------|-----------|---------|--|--|
| Priysical Dala | Inches | | | Axial Bearing Lo | au kaungs | - | | |
| Motor Overall Length | 183.75 | 4,667 | | | lbs | Kg | | |
| Motor Weight | 335 | 152 | [| Dynamic Compression/Tension | 13,250 | 6,010 | | |
| Bearing Assy MU Length | 58.25 | 1,480 | S | Static Compression/Tension | 36,650 | 16,624 | | |
| Top Connection | 2-3/8" Reg | 2-3/8" Reg | ſ | Max Overpull to Re-Run | 36,650 | 16,624 | | |
| Bit Connection | 2-3/8" Reg | 2-3/8" Reg | ſ | Max Bit Overpull (80%) | 232,000 | 105,235 | | |
| Bit Size | 3.75"-5.87" | 95.3-149.2 | ſ | Max Body Overpull (80%) | 230,000 | 104,328 | | |

Note: Load ratings can vary with different bit styles based on aggressive to non-aggressive

| POWER SECTION SPECIFICATIONS | | | | | | | | | |
|------------------------------|--------|-------|--|-----------------------|--------|--------|--|--|--|
| Rotor | Inches | MM | | Stator | Inches | MM | | | |
| Overall Length | 108 | 2,743 | | Overall Length | 124 | 3,150 | | | |
| Contour Length | 104 | 2,642 | | Tube O.D. | 3.38 | 86 | | | |
| Major Diameter | 1.964 | 49.89 | | Tube I.D. | 2.75 | 70 | | | |
| Minor Diameter | N/A | N/A | | Rubber Cutback-Top | 6 | 152 | | | |
| Eccentricity | 0.11 | 2.79 | | Rubber Cutback-Bottom | 0 | 0 | | | |
| Head O.D. | 1.87 | 47 | | Stages | 3 | 76 | | | |
| Weight-Ibs (kg) | 78 | 35 | | Weight-Ibs (kg) | 119 | 54 | | | |
| Thread Form | T1 o | r T2 | | Thread Form | Contac | t CTRT | | | |

| PERFORMANCE SUMMARY | | | | | | | |
|-------------------------------------|--------|---------|--|--------------------------------|-------|-------|--|
| Flow Range gpm (lpm) | 60-120 | 227-454 | | Max Diff Pressure-psi (kPa) | 710 | 4,895 | |
| Bit Speed Range (rpm) | 90-190 | 90-190 | | Stall Diff Pressusre-psi (kPa) | 1,120 | 7,722 | |
| Torque Slope ft-lbs/psi (nm/kPa) | 1.70 | 0.33 | | Max Torque ft-lbs (nm) | 1,204 | 1,633 | |
| Rotation Rev/Gal (Rev/liter) | 1.58 | 0.42 | | Stall Torque ft-lbs (nm) | 1,900 | 2,576 | |
| Off Bottom Pressure-psi (kPa) | 40 | 276 | | Max HP (kW) | 50 | 37 | |







"Opti-DRILL"™ DOWNHOLE Thru-Tubing Sealed Performance Motor (1.50" – 2.87")

The Patented "Opti-DRILL"[™] Downhole Thru-Tubing Motor features a wide range of torque, speed, and flow rates to convert hydraulic fluid energy, created by flow and pressure, into mechanical energy. The "Opti-DRILL"[™] was designed for optimal performance with today's higher torque power sections and an optional bearing assembly that is sealed for internal lubrication but will operate as a mud lubricated system if loss of seal occurs. This positive displacement motor produces optimum power output with maximum efficiency for today's Thru-Tubing Drilling demands.

DESIGN ADVANTAGES & BENEFITS

- ➤ The "Opti-DRILL"™ incorporates a HTH™, High Torque Hex Connection that connects the bit box to the drive shaft to eliminate galling, cross threading, stress risers and ultimately a failed connection. The HTH Connection provides greater torque and over pull loads than those associated with current drilling motors using threaded connections.
- ➤ The "Opti-DRILL"[™] utilizes an internal piston inside a grease filled housing that keeps the internal components well lubricated through the drilling operation. The sealing medium used is a simple high temperature grease product instead of oil.
- We have designed into the "Opti-DRILL"[™], catch systems at the top sub and the bearing mandrel that keeps the tool intact in the event of a drive shaft failure. The significant increase in internal and external cross sectional wall thicknesses enables the "Opti-DRILL"[™] to provide significant strength improvements throughout the length of the bearing assembly.
- ➤ Through value added engineering, the "Opti-DRILL"[™] is truly the next generation of sealed downhole motors. It is simply the easiest sealed bearing assembly to assemble and most reliable the market today.

TRANSMISSION

The motor's single-piece flexible shaft is the simplest and the most reliable transmission for standard applications in a small-diameter motor. The transmission incorporates the flex shaft and the flow diverter into a single piece unit for ease of assembly.

BEARING ASSEMBLY

The "Opti-DRILL™ Downhole Motor's bearing assembly is well suited for weight on bit, side loading, and over pulls. It utilizes an upper bearing stack for weight on bit in drilling mode and a lower bearing stack for off-bottom operation. It does not use a two piece (Inner/Outer) bearing assembly associated with today's current drilling motors, but rather a single unison bearing assembly. This bearing assembly is designed optionally for a sealed bearing system and in the case of a failed seal, will run more like a mud lubricated motor. It does not use needle type thrust bearings that will fail in the event of lost sealing.

POWER SECTION

The power section consists of a steel rotor, and an elastomeric lined stator tailored to the planned well intervention whether it is a high temperature application or an aggressive fluid application. The **"Opti- DRILL"™** bearing assembly can be adapted to any manufacturer's rotor and stator.



AV (Annular Velocity) By-Pass Sub

The **CTRT AV By-Pass Sub** is designed to run on top the SRT[™] Drilling Motor. It allows fluid to bypass through the selected nozzles when excessive fluid rates are pumped down the string for maximum operational efficiency of the drilling motor. With increased pump rates, cuttings will return to surface more effectively. The interchangeable orifice nozzles will dictate how much fluid runs through the drilling motor.

DESIGN ADVANTAGES & BENEFITS

- > Incorporates designed machined nozzles that minimizes flow cut.
- > High tensile strength materials to match that of SRTTM Drill Motor.
- > Increased cutting returns to surface to clear bit.
- > Replaceable nozzle kits in standard or customer flow rates.

SIZES

The AV Bypass Subs are available from **1.50**" to **3.75**" diameters with any connection of choice.

Contact your **CTRT** representative who can assist in nozzle configuration to meet your most demanding requirements.



| Tool O.D. | Min I.D. | Makeup Length | Nozzles per Tool | By Pass Rate | Connection (Box/Pin) |
|-----------|----------|------------------|------------------|--------------|----------------------|
| 1.688" | .625″ | 6.25″ | 3 | Call | 1.00" CS or MT |
| 2.125" | .750″ | 6.25″ | 3 | Call | 1.25 CS or 1.50 MT |
| 2.875″ | 1.00" | 6.75″ | 3 | Call | 2-3/8″ PAC |
| 3.125" | 1.00" | 7.00″ | 3 | Call | 2-3/8" PAC, API Reg |
| 3.500" | 1.00" | 7.00″ | 3 | Call | 2-3/8" API Reg |
| 3.750 | 1.25″ | 7.50″ | 3 | Call | 2-7/8" API Reg |

Note: Nozzle bypass calculations are based on new power section differential pressures as published by individual manufacturer for each lobe/stage configuration and may vary depending on rotor/stator fit after multiple runs.





Bit Diverter Sub

The **CTRT Bit Diverter Sub** is designed to run below the SRT[™] Drilling Motor with the drill bit threading into the **Bit Diverter Sub**. The sub creates a pressure differential through the use of a nozzle configuration that can create a balanced or unbalanced bypass through the selected nozzles to maximum cutting returns from the drilling motor. The interchangeable orifice nozzles will dictate how much fluid runs through to the bit or is directed away from the bit.

DESIGN ADVANTAGES & BENEFITS

- Incorporates designed machined nozzles that minimizes flow cut.
- High tensile strength materials to match that of SRTTM
- > Drill Motor.
- > Increased cutting returns to surface to clear bit.
- Replaceable nozzle in standard or customer flow rates.

SIZES

The Diverter Bit Subs are available from 1.50" to 3.75" diameters with any connection of choice.

Contact your **CTRT** representative who can assist in nozzle configuration to meet your most demanding requirements.







Multi Jet Bi-Directional Spinning Wash Tool

The **CTRT Multi Jet Bi-Directional Spinning Wash Tool** is designed to run in both a cleanout and circulating operation when washing the inside of tubing. The jetting action rotates in a continuous 360° action. It allows pressurized fluid through selected multi-pattern nozzles to remove scale of tubing obstruction to optimize well flow. The volume and speed of fluid can be modified based on engineering specifications or customer requirements thru numerous jetting options.

The center housing rotates on bearings through applied fluid pressure within an internal cavity. The mandrel O.D. of the box connection, by design, is larger than the rotational housing to minimize rotational stalls throughout the well cleanout process. Nozzles are positioned at strategic compound angles to maximize scale removal.

DESIGN ADVANTAGES & BENEFITS

- Incorporates designed nozzles that minimizes flow cut.
- > High tensile stainless materials that resist corrosion.
- Replaceable nozzles in standard or customer flow rates
- Bi-Directional Up & Down jetting pattern

Technical Specifications

| O.D. | Length | Rotational Nozzles | Center Static Nozzle | Connection |
|-------|--------|--------------------------|-------------------------|----------------------|
| 1.25″ | 6.50" | (12) @ .047" or .063" | (1) @ .047" or .063" | 3/4" MMT or CS |
| 1.69" | 7.75″ | (12) @ .063" or .078" | (1) @ .063" or .078" | 1.00" MT or CS |
| 2.12" | 9.00" | (12) @ .078" or .093" | (1) @ .078" or .093" | 1.50" MT or 1.25" CS |
| 2.87″ | 11.25″ | (16) @ .078",.093",.109" | (1) @ .078",.093",.109" | 2-3/8" PAC |
| 3.12" | 11.25″ | (20) @ .078",.093",.109" | (1) @ .078",.093",.109" | 2-3/8" Reg or PAC |

Note: Rotational nozzles are evenly split bi-directionally

Contact your **CTRT** representative who can assist in nozzle configuration to meet your most demanding requirements.





Non-Rotational Jetting Wash Nozzles Multi-Port & Full Bore

The **CTRT Jetting Wash Nozzles** are designed to run in tandem with a wash package. Fluid flow is jetted through the selected fix nozzles diameter. A full bore nozzle is primarily designed for the placement of slurry during shut- off operations. The multi-port nozzle is designed to give full radial coverage over the completion tubular during well intervention operations.

Porting can be manufactured in any combination with port sizes to match optimum performance including fluid diverted up, down, 90 degree side, angled jetting or customer specific flow rates and pattern.

DESIGN ADVANTAGES & BENEFITS

- Simple robust design
- > Optimal nozzle port size to maximize clean-out requirements

SIZES

The wash nozzles are available from **1.25**" to **3.75**" diameters with any connection of choice.

Contact your **CTRT** representative who can assist in nozzle configuration to meet your most demanding requirements.





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Hydraulic Bow Spring Centralizer

The **CTRT Hydraulic Bow Spring Centralizer** has been designed to pass through restricted bores such as production tubing, packers and nipples, then expand and centralize inside the casing and stabilize bottom hole assembly, to assist in drilling, fishing, underreaming, or wash over operations. This relatively large expansion is generally not within the operating range of conventional fixed centralizers.

The flow activated Bow Spring Centralizer operates in a retracted position until the designed pressure differential is reached across the tool to expand to centralizing operations against the casing wall to stabilize tool string. As flow rate is decreased and differential pressure is reduced, the bow springs will collapse and the bottom-hole assembly can be pulled from hole.

The expandable bow springs or centralizing arms are mounted above a coil spring to allow the necessary designed movement required in order to pass through restrictions. Care should be taken when running in and out of these restrictions so as to prevent any damage to the bow springs.

DESIGN ADVANTAGES & BENEFITS

- > Centralizes tool string to prevent side loading in large tubing diameters
- Full flow through bore with optional choke nozzles for modified expansion activation pressures
- Large expansion rating with small run-in diameter

| TOOL O.D. | TOOL I.D. | MAKE-UP LENGTH | EXPANSION RANGE | PSI RANGE TO ACTIVATE | THREAD TYPE |
|-----------|-----------|-------------------|------------------|--------------------------|----------------------|
| 1.69" | .510″ | 40" | 1-11/16" - 6.50" | 300-1200 PSI | 1.00" MT or CS |
| 2.12" | .750″ | 40 | 2-1/8" - 7.00" | 500-1000 PSI | 1.50" MT or 1.25" CS |
| 2.87" | 1.00" | 47" | 2-7/8" - 8.50" | 500-650 PSI | 2-3/8" PAC |
| 3.12" | 1.00" | 45″ | 3-1/8" - 8.00" | 500-1000 PSI | 2-3/8" REG |

Technical Specifications



Integrated Centralizer

The **CTRT Integrated Centralizer** is designed to allow the disassembly of the fluted blade section to accommodate various blade O.D.'s in one tool. The integrated centralizer provides general stability of a tool string in tubing in drilling or fishing operations.

The centralizer is a full flow through bore to allow passage of drop balls. The bladed centralizer slides over the upper mandrel that is threaded into the lower sub and locked into place. This allows easy change out of the bladed section only to allow the option of many O.D. sizes to be used. The blades can be turned to size for any centralization requirement.

DESIGN ADVANTAGES & BENEFITS

- > Three piece construction with locked in fluted blade
- Reduce cost by changing bladed centralizer only
- Full flow through bore

Technical Specifications

| Tool O.D. | Tool I.D. | Makeup Length | Overpull Yield | Connection |
|-----------|-----------|------------------|----------------|---------------------|
| 1.688" | | | 00,000 lbs | 1.00″ MT or CS |
| 2.125" | | | 00,000 lbs | 1.50 MT or 1.25 CS |
| 2.875″ | | | 000,000 lbs | 2-3/8" PAC |
| 3.125″ | | | 000,000 lbs | 2-3/8" PAC, API Reg |





1.38", 1.69" & 2.12" Slammer"[®] IMPACT HAMMER

The **CTRT "Slammer"**[®] Impact Drill-Jar features a wide range of speed, impact force, and flow rates to convert hydraulic fluid energy, created by flow and pressure, into mechanical energy. This positive displacement impact drill produces optimum power output with maximum efficiency for today's tough thru-tubing demands.

Primary applications for the **"Slammer"**[®] is removal of scale, gravel, resin sand, paraffin, breaking ceramic disks and drilling in high temperature and H2S wells.

TRANSMISSION

The **"Slammer"**[®] has a single-piece non-flexible shaft; it is the simplest and the most reliable transmission for standard applications in a small-diameter impact drill.

POWER SECTION

The power section consists of no rubber components or chromed steel rotors. The advantage of eliminating these fragile, high cost parts is obvious. Operators are not limited to only liquid as a circulating medium, but rather can use nitrogen, foam, diesel, zylene, and *HcL (in hostile environment tool), and light bodied fluids up to 12#. The **"Slammer"**[®] is tailored to the planned well intervention whether it is a high temperature application or an aggressive fluid application. The **"Slammer"**[®] can be used in temperatures up to 700 degrees as well as in H2S, HcL, and carbonic acid environments.

BEARING ASSEMBLY

The **"Slammer"**[®] Impact Drill Jar's bearing assembly is well suited for weight on bit, side loading, and over pulls. Non-typical bearings are used and therefore conventional problems with lubrication failure and overheating are eliminated.

| DESIGNATION | FLOW RANGE (GPM) | HITS PER MINUTE (HPM) | tool operating Range (PSI) |
|-------------|------------------|--------------------------|-------------------------------|
| 1-3/8″ | 10-40 | 70-800 | 300-1500 |
| 1-11/16" | 11-50 | 60-700 | 500-2,000 |
| 2-1/8" | 21-84 | 50-750 | 400-2,100 |

Especificaciones





1.375" Performance Specifications "SLAMMER"® Impact Drill-Jars

| | U.S. UNITS | s.i. unit |
|--|-----------------|--------------|
| Tool Diameter | 1-3/8" (1.375") | 34.9 mm |
| Overall Length | 26.50" | 673.1 mm |
| Weight | 9.0 lbs | 4.08 Kg |
| Top Connection | 3/4" CS Box | 3/4" CS Box |
| Bottom Connection (Screws into CTRT Impact Bits Only) | CTRT Special | CTRT Special |
| Flow Rates | 10-40 gpm | 38-151 lpm |
| Tool Operating Range | 300-1,500 psi | 21-103 bars |
| Weight on Tool | 150-1,200 lbs. | 68-544 Kg |
| Maximum Overpull | 24,000 lbs. | 10,886 Kg |

1.687" Performance Specifications "SLAMMER"® Impact Drill-Jars

| | U.S. UNITS | s.i. unit |
|--|-------------------|--------------|
| Tool Diameter | 1-11/16" (1.687") | 42.8 mm |
| Overall Length | 34.50" | 876.3 mm |
| Weight | 15.0 lbs | 6.80 Kg |
| Top Connection | 1.0" CS Box | 1.0" CS Box |
| Bottom Connection (Screws into CTRT Impact Bits Only) | CTRT Special | CTRT Special |
| Flow Rates | 11-50 gpm | 42-189 lpm |
| Tool Operating Range | 500-2,000 psi | 34-138 bars |
| Weight on Tool | 250-1,500 lbs. | 113-680 Kg |
| Maximum Overpull | 29,000 lbs. | 13,154 Kg |

2.125" Performance Specifications "SLAMMER"[®] Impact Drill-Jars

| | U.S. UNITS | s.i. unit |
|--|-----------------|--------------|
| Tool Diameter | 2-1/8" (2.125") | 54.0 mm |
| Overall Length | 38.50" | 977.9 mm |
| Weight | 27.0 lbs | 12.25 Kg |
| Top Connection | 1.5" MT Box | 1.5" MT Box |
| Bottom Connection (Screws into CTRT Impact Bits Only) | CTRT Special | CTRT Special |
| Flow Rates | 21-84 gpm | 79-318 lpm |



Torque - Thru Knuckle Joint

2-7/8" Reg

10,000 PSI

The CTRT Torque-Thru Knuckle Joint provides additional flexibility in the tool string. It is used in highly deviated or restricted wells to aid when running a centralizer, stabilizer, or SRT-G2 Drill Motors. It can be placed above or below the Drill Motor, preventing any unnecessary side loads that could reduce operational life or damage to motor.

The knuckle joint provides a full 15° angular deviation and internal pressure seal with full deviation of the tool and still allows clearance for ball drops and fluid flow. The knuckle joint's torque capability meets or exceeds that of the drilling motor.

DESIGN ADVANTAGES & BENEFITS

TBD

- > Torque Transmitting
- > 15° Angular Deviation
- Flow Through Bore

SIZES

The Torque-Thru Knuckle Joints are available from 1.69" to 3.75" diameters with any connection of choice.

| ATA SPECIFICATIONS | | | | | | |
|--------------------|----------|------------------|----------------------|---------------------|--------------------|--|
| Tool O.D. | Min I.D. | Makeup Length | Overpull Yield @ 80% | Working Pressure | Connecton | |
| 1-11/16" | .500″ | 10.50" | 40,000 Lbs | 10,000 PSI | 1.00" CS or MT | |
| 2-1/8″ | .750″ | 10.75″ | 50,000 Lbs | 10,000 PSI | 1.25" CS or 1.50"M | |
| 2-7/8″ | 1.00" | 11.75″ | 80,000 Lbs | 10,000 PSI | 2-3/8" PAC | |
| 3-1/8" | 1.00" | 12.00" | 100,000 Lbs | 10,000 PSI | 2-3/8" PAC or Reg | |

TBD

TBD

D

3-3/4"





THRU-TUBING

Locking Swivel Joing

The **CTRT Locking Swivel Joint** allows for full rotation of the BHA made below the joint without the need to disconnect from the coil. It is designed for deploying long tool strings. Used in conjunction with a deployment sub, the locking swivel joint allows that tool string to be lowered into the wellbore and hung off in the blowout preventers (BOP) on a set of slip rams. It can then be made up to the tool string. By pulling the coupling back, tightening the screws, and disengaging the clutch, the upper string is ready for makeup.

DESIGN ADVANTAGES & BENEFITS

- Torque Transmitting
- Radial Ball Bearings for Rotation
- > Large I.D. for Maximum Flow

SIZES

The Locking Swivel Joints are available from **1.69**" to **3.75**" diameters with any connection of choice.

DATA SPECIFICATIONS

| Tool O.D. | Min I.D. | Makeup Length | Overpull Yield @ 80% | Working Pressure | Connecton |
|-----------|----------|------------------|-------------------------|------------------|---------------------|
| 1-11/16" | .531″ | 15.50" | 22,500 Lbs | 10,000 PSI | 1.00" CS or MT |
| 1-13/16" | .560" | 15.50" | 25,000 Lbs | 10,000 PSI | 1.00" CS or MT |
| 2-1/8" | .810" | 15.25″ | 23,000 Lbs | 10,000 PSI | 1.25" CS or 1.50"MT |
| 2-7/8″ | 1.00" | 20.00" | 60,000 Lbs | 10,000 PSI | 2-3/8" PAC |
| 3-1/8" | 1.00" | 20.00" | 85,000 Lbs | 10,000 PSI | 2-3/8" PAC or Reg |
| 3-3/4" | TBD | TBD | TBD | 10,000 PSI | 2-7/8" Reg |





Weight Bars

The **CTRT Weight Bar** is manufactured from solid bar with a relatively small I.D. to ensure maximum weight displacement. It can be utilized in any BHA where additional weight or length is required and is offered in a range of diameters, I.D.'s and lengths up to 5 feet (60") and common thread connections.

It is typically used in coil tubing clean outs to extend the length of the BHA and the distance between the jetting nozzle and disconnect.

It can increase the amount of impact applied at the fish while running in tandem with a jar and accelerator.

The weight bar can also be utilized with any coiled tubing motor to act as a drill collar. The additional weight on the motor string can help provide more controlled "weight on bit" during coiled tubing drilling operations.

DESIGN ADVANTAGES & BENEFITS

- Full flow through bore
- One piece solid construction.
- Thread connection option to suit customer requirements

| Tool O.D. | Min I.D. | Make-Up Length | Connections |
|-----------|----------|----------------|-------------|
| 1.250 | .500 | 36",48",60" | .75" MMT |
| 1.500 | .625 | 36",48",60" | .75″ MMT |
| 1.687 | .625 | 36",48",60" | 1.00" MT |
| 2.125 | .750 | 36",48",60" | 1.50" MT |
| 2.875 | 1.00 | 36",48",60" | 2-3/8" PAC |
| 3.125 | 1.00 | 36",48",60" | 2-3/8" Reg |



Hydraulic "GS" Pulling Tools

The **CTRT Hydraulic "GS" Pulling Tool** has been designed to provide a strong reliable method of latching to and retrieving downhole tools using a standard or modified internal fishing neck profile.

Hydraulic differential pressure across the orifice allows the piston to pull the heavy duty latching mechanism (dogs) upward to release from the internal fish neck. When flow has been reduced, the springs shift the dogs back down to a "latched" position for multiple latch and release capability.

The tool does not require shear pins or drop balls as the designed hydraulics allow the latching and releasing process of the tool to operate.

DESIGN ADVANTAGES & BENEFITS

- Robust proven core/dog design
- Full hydraulic operation
- Multiple latch and release capability

Technical Specifications

| TOOL O.D. | TOOL I.D. (without choke) | Make-up Length | "GS" SIZE | PSI TO RELEASE | THREAD TYPE |
|-----------|------------------------------|-------------------|-----------|-------------------|-------------------------|
| 1.810" | .510″ | 18.250" | 2.00" | 1000 PSI | 1.00" MT or CS |
| 2.12" | .750" | 18.250" | 2.50" | 1200 PSI | 1.50" MT or 1.25" CS |
| 2.87″ | 1.00" | 17.750" | 3.00″ | 1350 PSI | 2-3/8" PAC |
| 3.12" | 1.00" | 17.750" | 3.50″ | 1200 PSI | 2-3/8" REG |

| gs size | TUBING O.D. SIZE | A | В | С | D |
|---------|------------------|-------|-------|------|-------|
| 2.00" | 2-3/8″ | 1.38″ | 1.59″ | .54″ | 1.47" |
| 2.50" | 2-7/8″ | 1.81″ | 1.98″ | .54″ | 1.47" |
| 3.00″ | 3-1/2" | 2.31" | 2.47" | .54″ | 1.47" |



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Power-Maxx"™ Jar

The "**POWER-MAXX**"[™] Hydraulic Jar has been designed to produce high impact loads during fishing operations or to be included in Milling, Drilling or Intervention BHA's as a contingency measure. The "**POWER-MAXX**" Hydraulic Jar represents the continued advancement of jar valve/fluid technology.

Our latest technology generation provides for optimum time delay and maximum velocity at detent release providing enhanced impact force.

DESIGN ADVANTAGES & BENEFITS

- > Simple robust design for ease of operation.
- > Minimal mechanical "drag" at detent release, permits the maximum acceleration of the mass to the anvil.
- > Compact design ideal for restricted heights.
- ➤ Through value added engineering, the "POWER-MAXX"™ is truly the next generation of Hydraulic Jars. It is simply the easiest to assemble, disassemble and maintenance free jar on the market today.

| O.D. | Min I.D. | Makeup Length | Operational Over-Pull Wt. | Operational Set-Down Wt. | Stroke Length | Max Detent Over-Pull Working Load | Max Detent Set-Down Working Load | Max Temp | Connection |
|-------|----------|------------------|------------------------------|-----------------------------|------------------|--|---|----------|------------|
| 1.69" | .562″ | 57-1/2" | 8,000 lbs | 8,000 lbs | 3.50″ | 8,000 lbs | 28,000 lbs | 500°F | 1.00" MT |
| 2.12" | .625" | 57-1/2" | 76,000 lbs | 5,500 Ft-Lbs | 3.50″ | 26,000 lbs | 46,000 lbs | 500°F | 1.50" MT |
| 2.87" | 1.030″ | 57-1/2" | 100,000 lbs | 8,000 Ft-Lbs | 3.50″ | 45,000 lbs | 70,000 lbs | 500°F | 2-3/8" PAC |
| 3.12" | 1.030" | 57-1/2" | 200,000 lbs | 14,000 Ft-bs | 3.50″ | 70,000 lbs | 95,000 lbs | 500°F | 2-3/8" REG |

Technical Specifications

| O.D. | Max Over-Pull Weight (Recommended) | Max Set-Down Weight (Recommended) | Tool Overpull Yield @ 80% | Torsional Yield @ 80% |
|-------|---------------------------------------|--------------------------------------|---------------------------|-----------------------|
| 1.69″ | 28,000 lbs | 28,000 lbs | 56,000 lbs | 1,500 Ft-Lbs |
| 2.12" | 46,000 lbs | 36,000 lbs | 76,000 lbs | 5,500 Ft-Lbs |
| 2.87" | 70,000 lbs | 50,000 lbs | 100,000 lbs | 8,000 Ft-Lbs |
| 3.12" | 95,000 lbs | 60,000 lbs | 200,000 lbs | 14,000 Ft-Lbs |







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