

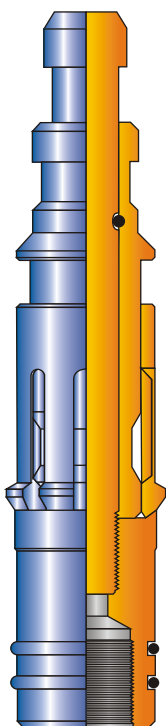


LATCHES

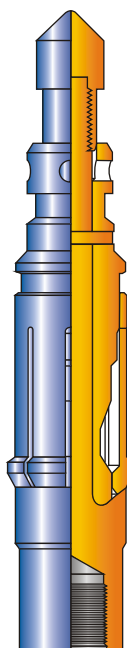
Latches are available in a wide range of designs for use with retrievable gas lift and circulation valves to be installed in side pocket mandrels. These latches are designed to be installed with a minimum of force, a feature very important in deviated wells where forceful downward jarring may be difficult. Side pocket mandrels feature two types of pocket latch profiles: the G-type which has a 180-degree eccentric latch ring profile with the no-go surface located near the lower end of the latch; and the A-type which has a 360 degree latch profile with the no-go surface above the locking mechanism. Latches used in each of these profiles are not interchangeable; however, valves and other flow control devices can be adapted from one profile to the other by selecting the correct latch.

1 ½ inch TG and 1 inch M Latches are designed for installation in G-type pocket mandrels. A set of collet type locking dogs are free to move up and into a recess in the locking mandrel as the latch engages the pocket profile. When an upward pull is exerted on the latch, the full diameter of the locking mandrel moves behind the dogs which locks them in the set position. To retrieve the valve and latch, an upward force is applied, which shears a pin. This action moves the locking the mandrel up, which frees the dogs to retract as the valve and latch are pulled.

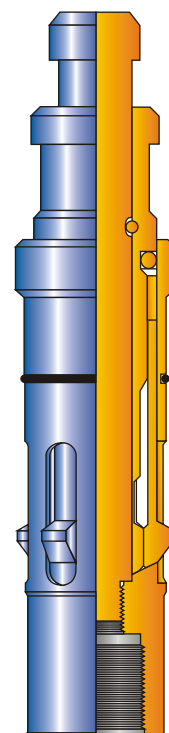
1 ½ inch T2 Latches are designed for installation in A-type pocket mandrels. They utilize a set of collet type locking dogs configured inside a slotted sleeve. As the latch enters the pocket, the dogs move up and into a recess the locking mandrel. After reaching the no-go position, an upward pull causes the dogs to move over the locking mandrel and lock into the pocket recess. To release the locking dogs, an upward force is applied which shears a pin, moving the locking mandrel up. The latch and valve are then free to be retrieved.



**1 1/2 - INCH
TG LATCH**



**1 - INCH
M LATCH**

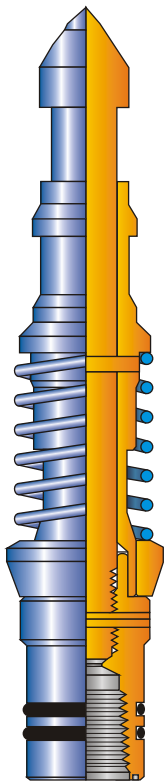


**1 1/2 - INCH
T2 LATCH**

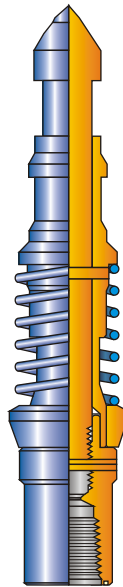
LATCHES

1 ½ inch RK and 1 inch BK-2 Latches are designed for installation in G-type pocket profile side pocket mandrels. They utilize a locking ring which is held in position by spring force. As the latch enters the side pocket profile, the locking ring moves up and into the recessed area of the latch. When the latch seats, the ring is positioned in the locking recess of the pocket. To retrieve the latch, a pin is sheared by upward force allowing the locking ring mandrel to move up and out of the way. The ring is then freed to disengage from the locking recess as the valve and latch are retrieved.

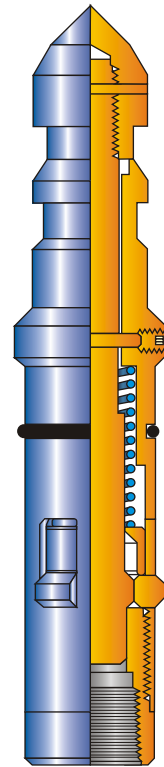
1 ½ inch RM Latches are designed for installation in A-type pocket profile mandrel. They have a set of spring-loaded locking dogs designed to move up into a recessed area on the latch core when run into the latch profile of the mandrel. The valve is lowered into the pocket until the no-go shoulder is reached. The spring force moves the locking ring downward, forcing the dogs to move over and onto the large O.D. of the inner mandrel, thus locking the valve in place. To release the latch, a pin is sheared by upward force which allows the inner mandrel to move up and out of the way. The locking dogs are then free to return to the recess area as the latch and valve are retrieved.



**1 1/2 INCH
RK LATCH**



**1 1/2 INCH
BK - 2 LATCH**



**1 1/2 INCH
RM LATCH**

ENGINEERING DATA FOR LATCHES

Type	Part No.	Pulling Neck OD (inch)	Running Neck OD (inch)	Max OD (inch)	Side Pocket Accessory OD (inch)	Running Tool	Pulling Type
TG	230-1600-000-01	1.183	0.939	1.795	1.500	RK-1 / RTG	1-5/8 JDS / PTG
RK	230-1200-000-01	1.185	0.936	1.787	1.500	RK-1 / RTG	1-5/8 JDS / PTG
T2	230-0700-000-01	1.375	1.000	1.75	1.500	TER	2" JDC / SM / TRP
RM	230-3000-000-01	1.375	1.000	1.75	1.500	TER	2" JDC / SM / TRP
M	230-0200-000-01	0.875	0.750	1.335	1	MR	1-1/4 JDC / MP
BK-2	230-2400-000-01	0.875	0.750	1.358	1	MR / JK	1-1/4 JDC / MP
WFM	230-0400-000-01	0.875	0.750	1.335	1	MR/JK	1-1/4 JDC / MP